THE AMERICAN ARCHITECT
The ARCHITECTURAL REVIEW
VOL. CXXI WEDNESDAY, JANUARY 18, 1922 NUMBER 2385

Birds-eye view from an adjacent Water-Tower.

FORT MIFFLIN

BY CARL A. ZIEGLER, ARCHITECT

IT seems incredible that anything new can be added to the great mass of information that has been published in reference to the building achievements of the sturdy pioneers who laid the foundation for the "Great American Experiment" but although the present generation of architects has studied the work of the so-called "Colonial Period" with a seriousness akin to reverence, very little has been said or written about the early fortifications that were erected for the defense of the young Republic.

Although our forefathers were undoubtedly a devout and industrious people more inclined to the pursuits of peace than to the lure of military achievements, yet straight thinkers that they were, they added to the admonition to "Trust in God" the caution to "keep one's powder dry;" and in the same spirit with which they built their dwellings and churches and formed every utensil which they used, however humble, they built their fortifications, and these for the same reason are also beautiful.

"Quarters"

Vitruvius in his ten books on Architecture explains the important part played by the architects of his day in designing the fortifications of the Roman Empire, but one has only to interview an army engineer to realize that the architect has ceased to function in that field to-day; nevertheless the architectural student will miss much that is worthy of study if he fails to observe the few examples of early fortification work that still remain intact, not that he will gain any knowledge on the subject of defensive warfare, for even the army engineer has to admit the fact that the great war proved the utility of attempting to erect fortifications that would resist the assault of modern guns, but there is something whimsical about these old forts that seem to strut with the military spirit when we examine the yawing moat and sturdy walls and casemates, but which

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This is all that stood between the British gun-boats and Philadelphia in 1812

appear so naive and complacent, when we see the simple little village which surrounds the parade within the walls, possessing all the charms of one of our Pennsylvania farmsteads with none of the militant spirit which we associate with the term "fortification."

One of the most interesting of these early military structures is Fort Mifflin which is situated on the Delaware River, just below the mouth of the Schuykill River.

Were this interesting fortification situated near one of the larger cities of Europe no architectural student would think of visiting that city without including it in his itinerary, but although it lies only about six miles from the center of the city of Philadelphia, it is seldom visited by anyone and is practically unknown to the professors.

Maps of the City of Philadelphia published in 1750 fail to show any fort upon Mud Island which in the early days was entirely separated from the shore, although it is now fast and solid to the mainland.

Main gate to the Fort
Note slotted wall to the right from which troops in the vaulted casemates under the embankment could enfilade the enemy

A mud fort is supposed to have been the first defensive work erected upon this island, but in 1773 the Province of Pennsylvania began the erection of a more substantial fortification. It was in such a position as to command the channel of the river between it and Red Bank on the New Jersey shore and was known prior to the Revolution as Fort Mud.

During the Revolutionary War, Fort Mud offered a gallant resistance to the English; Colonel Samuel French of Maryland, with his band of irregulars, holding out against an overwhelming force until nine-tenths of its garrison were hors-de-combat.

General Washington was most anxious for the defense of Fort Mud and ordered Lt. Colonel Summer to reinforce it, but nevertheless, it was taken on the night of November 15, 1777, and Philadelphia was occupied by the British, who were guilty of wanton destruction of property after the evacuation of the fort, burning twenty-seven houses, including Jonathan Mifflin's mansion.

In 1793 the Legislature of Pennsylvania appropriated $5000.00 for the purpose of reconstructing the fort. A battery is said to have been erected upon the island by Mjr. Peter Charles L'Infant, who played such a large part in the designing of public improvements in the early days of the Republic. He it was who laid out the original plan for the City of Washington, D. C.

In 1795 the property was ceded to the state of Pennsylvania and thereafter was called Fort Mifflin in honor of General Thomas Mifflin, Governor of Pennsylvania.

Up until the year 1814 Fort Mifflin was the only defense which the City of Philadelphia possessed against an attack from the river.

During the War of 1812 there was great anxiety in Philadelphia because of a threatened attack by the British: Fort Mifflin could have resisted only very little, but fortunately the river froze over and the gunboats could not come

Officers' Quarters

Stone Houses and troops' quarters surrounding the Parade

FORT MIFFLIN, ON DELAWARE RIVER, PA.

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up the Delaware to attack the City.

Fort Mifflin is not only a very interesting example of early fortification work but from the comprehensive group of buildings within the walls one can, with very little exercise of the imagination, picture a very interesting phase of the early life of the city.

It is unusual to find so large a group of early buildings in practically their original condition and with their original surroundings, but situated as they are, surrounded by the moat and wall and locked in by the heavy gates, these buildings have been undisturbed by the march of progress and to the student of art they still convey the realization that America did at one time possess an art sense that was adequately expressed in its architecture.

Interior view of main gate
The iron grating to the left leads to the casemates under the embankment

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"Road of Remembrance" Planned Across New York State

TWO thousand elm trees will be planted on the road between Syracuse and Utica early next spring as the possible beginning of a "Road of Remembrance," extending from New York City to Buffalo, as a tribute to New York soldiers who died in the World War.

Press reports announce that the College of Forestry of Syracuse University has pledged itself to the State Highway Commissioner and the State Forestry Superintendent to supply the trees for the first ten miles out of Syracuse.

In this connection a recent issue of the New York *Tribune* prints the following:

Of all the forms of war memorials none seems to have such a searching appeal as the "Road of Remembrance." In Great Britain the idea has taken hold of the public imagination, and the project of lining with trees the ancient roads of England, Scotland, Wales and some parts of Ireland is being carried on systematically. In the United States the Lincoln Highway Association is considering a transcontinental planting plan. In Louisiana a memorial tree is being set out every forty feet along the Jefferson Highway.

It was through some tree-lined road in France that every man who played a man's part had to march to keep tryst with his destiny. One among them was Joyce Kilmer, turning over in his mind, perhaps as he slogged along, his own tender thoughts of trees.

The Parade, Fort Mifflin
Practically unchanged, excepting for decay. With very little imagination one can picture the very interesting life that must have gone on in this enclosure during the early days

FIG. 1

THE VALUE OF MODELS IN ARCHITECTURE

BY JEAN HETHERINGTON

Illustrated by photographs of models made by the author

THE last thirty years have seen a great impulse in the esthetic development of public and domestic architecture in the United States, and during that period as the education of the planner and the designer has advanced, his perception broadened and his work improved, so has the art of rendering in perspective been recognized more and more as an essential in the practice of architecture. This was felt perhaps, in the first place, as being helpful for the enlightenment and more easy comprehension of client, corporation or public body, as the case might be, who, responsible for the initiation of building problems and the providing of funds for the prosecuting of same, required visual portrayal of designer's solution. In the second place, and more important, the architect, on his own account has increasingly felt the urge towards better perception of the values of mass and shadow, of outline and projection, of approach and environment, and generally, of better mental grasp in his efforts towards higher levels.

FIG. 2

To these factors chiefly can be attributed the necessity for adequate pencil, ink and color rendering, which, keeping pace with quality in design, has now reached such stage of perfection that the exquisite work of Eggers, Long and many others is now accepted as the every day and matter of course.

While perspective drawings, therefore, must always remain in the highest degree indispensable, they are on occasion inadequate and at times possibly misleading in so far as they fail to produce on minds of those vitally concerned a full conception of the endeavor of the architect to translate the ideal into terms of walls, fenestration and roofs. Such drawings present but one view, and

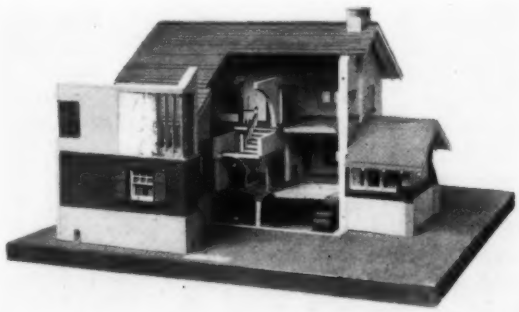

FIG. 3

that, naturally, the most favorable to the scheme contemplated in the mind of the designer. A façade, when depicted from one point, can be altogether noble and imposing, but may, when seen from another point, be disappointing in its relation to the alternative side of the same building. Or a grouping of walls, openings, chimneys and roofs

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when viewed from a certain distance and direction may be pleasing and satisfactory, and from another be only confusing and unbalanced.

To layman and professional both, therefore, the art of accurate scale model delineation should be welcomed as additional and more commensurate means towards clearer visualization. The Greek

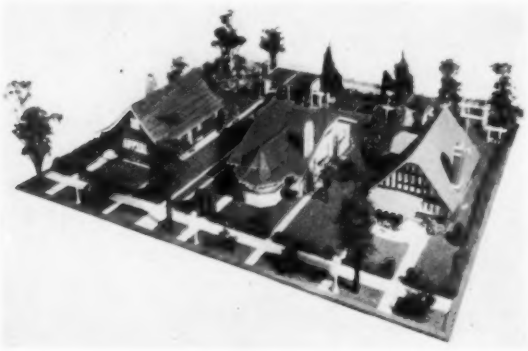

FIG. 4

and the Roman architect used this medium; later, Christopher Wren did so, and in the near past many models of the more pretentious buildings in this country and abroad have been produced. There are many methods of construction and representation, and the adoption of the different modes, materials and scales will be governed largely by the individual problem and by the wishes of the prospective owner. Being a replica of the completed building it should be to accurate scale and indicate as far as possible the actual details of same. The ordinary public building or street home, for instance, is that usually where immediate environments are of fixed character and limited scope. The country house, on the other hand, with its large spaces and existing topographical features, gives opportunity for study, not alone of the artistic elements but also of the economical development of the house in its relation to grounds, driveways, etc. In the well made model, accurate and complete in all details of stone and brick textures, window reveals and glass, roof eaves and its walks and shrubs, there is to the owner something peculiarly gratifying as he visualizes it, and especially if he does so at a distance, through the medium of a pair of opera glasses. He receives a vivid and realistic impression of the finished building altogether more complete and adequate than that mentally conveyed by mere line and color and is thereby enabled intelligently to appreciate, criticise or modify.

Attacks Immoral Art

"FROM some plays one sees each season in New York one might infer that there was only one commandment, the seventh, and mankind knew but one pleasure, breaking it," Dr. Henry Van Dyke of Princeton University, said in the convention of the Department of Superintendence of the National Education Association. He said immoral art was the most evil influence in the world.

Art for art's sake is a plea for its degradation, asserted Dr. Van Dyke, and the divorcing of art and morals will leave the art world as ruined as "though it had been cursed with an Egyptian plague." Jazz music was characterized by the speaker as "invented by demons for the torture of imbeciles."

"Much of the nudity in art has done less harm than the language in which it is described," he remarked. "We must exclude deadly art as we would deadly weapons. But do not rely on law to make people virtuous. This must be a matter of spirit. What we need is more moral sense not subject to sleeping sickness and not more statutes."

The highest element in art, in Dr. Van Dyke's opinion, is the moral element, and the best things art produces are those which make people stronger as well as happier.

"Those who say poetry and painting are exempt from the moral law, that they only have to be beautiful, are mistaken.

"Good music is caused by and fosters high emotions. It is hard to have high thoughts to jazz. The glutton cannot sing of his inner thoughts or the miser of his gold and produce real music, but the patriot can sing of his country."

The importance of religious education and need for correlating it with secular education was expressed in the following resolution adopted today:

"In view of the dependence of democracy upon religion, and the attacks to which all churches and all democratic governments alike are being subjected by radicals and by the emissaries of nations now under radical control, it is the duty of all churches, irrespective of creed, to unite in an effort to make religious education more universal and efficient, to emphasize democratic elements in religious instruction with all elementary public school education helpful to religion. It is the duty of the public school authorities to emphasize all non-religious elements in instruction which tend to make religious instruction more intelligent."

NOTES ON ILLUSTRATIONS

House of Eugene Kienle, Esq., Great Neck, L. I.

Wm. H. Gompert, *Architect*

Lewis & Valentine, *Landscape Architects*

"MANY GABLES" the house of Mr. Eugene Kienle is located on Manhasset Bay at Great Neck, L. I.

The name "Many Gables" is derived from the ensemble of its many gables which exceed in number the house made famous by Hawthorne.

The general lines of the buildings and the arrangement of the various wings, have been carefully studied to produce low rambling effects with abundant interesting shades and shadows.

The walls are constructed of red clinker bricks carefully selected so that while the predominating color is red, the surfaces have been mottled with dark blue, purple and black clinkers featured in the laying of the masonry. The appearance of the brick work has been further enhanced by the light cream colored bed and cross joints which are arranged in such a manner as to give the effect of an underlying plaid weaving, in wall surfaces.

The window frames and casings are painted a strong cream color. The leaders, barge boards, eaves and flashings are of copper, and have been treated so that they have a soft *vert antique* tone.

The roofs are covered with a heavy Tudor slate 1¼″ in thickness at the eaves and laid 10″ to the weather and graduated in thickness to ¼″ at the ridges where the surfaces to the weather had been diminished to 3″.

The slate is of variegated colors consisting of soft tones of purple, green, grey and blues.

The hips of all roofs have been built with a slight concave curvature and all valleys formed by the intersection of the various surfaces of the roof have been rounded and covered with slate.

The chimneys are built of the same kind of brick as the walls of the house and are topped with buff colored terra cotta chimney pots.

The floors of the entrance loggias are paved with a biscuit color faience tile with black and pewter colored faience tile borders.

The floors of the entrance loggias are paved are paved with heather brown tiles with black faience borders.

The floors throughout the principal rooms are of oak and stained and treated in imitation of teak wood. The trim throughout is of simple design, painted, enameled and glazed to match the wood work of the respective rooms.

The study is reached by rising two steps from the entrance hall and crossing the broad platform at the foot of the main stairs and has been decorated and furnished in Chinese effects.

The Living Room is carried out in early Italian Renaissance style as are also the furnishings all of which take their note from the antique imported Carrara marble mantel, whereas the Dining Room is of Jacobian style with the furniture of the Cromwellian period. The chambers are decorated in the Georgian, Queen Anne and Colonial periods.

The three principal chambers on the 2nd story each have a large sleeping porch adjoining, which have been carefully concealed in the exterior design so as not to present a detrimental motif as is frequently the case with sleeping porches.

The bath rooms have been paved with white herringbone tiling with black faience borders and the walls to a height of 7′0″ have been tiled with white tile with a black glazed border near the top.

This house is heated by a vacuum steam heating system, with thermostatic control.

Alterations to South Congregational Church, Pittsfield, Mass.

Harding & Seaver, *Architects*

BEFORE this alteration was made the recess was filled with an organ with black walnut case and high black walnut pulpit platform and a choir gallery. The photograph shows the divided organ, the console of which is behind the choir railing. The organ builder required high openings towards the auditorium which are covered by the grilles of wood, the use of which is not evident without some explanation. The church required the pulpit at one side and the reading desk at the other in order to accommodate the chorus choir in the seats facing the middle of the recess. The pews were simplified and made over from the cherry pews which were arranged on a slant and had no center aisle.

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DYNAMIC SYMMETRY

BY ALBERT A. SOUTHWICK

"The chief forms of beauty are order and symmetry and definiteness, which the mathematical sciences demonstrate in a special degree."
ARISTOTLE, *Metaphysica, b.xiii c.iii.*

WHATEVER one may wish to think of Dynamic Symmetry, it is a subject which should receive, and which will in any case demand thoughtful consideration. If its principles have the fundamental character that is claimed for them, no amount of opposition can more than delay its general acceptance. If on the other hand the claims made are based on defective or insufficient deductions from the facts, those interested would be glad to know it. Already there are many who believe that it is indispensable for their work, and if they are right, development may in a not very distant future produce results which can now be only vaguely imagined. It is not possible within the limits of a magazine article to more than indicate wherein Dynamic Symmetry differs from the symmetry in general use, but much of the criticism which is made of it is so evidently inspired by misapprehension of what it is and what it can do, that any explanation may be helpful.

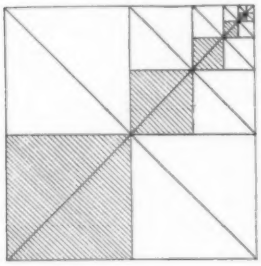

FIG. 1

The system presented by Mr. Hambidge bestows the power to construct form in such a way that all the elements have a clearly related ratio of proportion—more applicable, varied, and interesting than that with which we have been familiar. It had previously been possible to attain a perfect but monotonous symmetry by employing a design area which was a multiple of the unit chosen—a method which resulted naturally from working in linear dimensions. In that way the area could be so divided that the units would just fill it with figures whose relationship could be determined. A square, or any rectangle consisting of a square, and an excess composed of even units of the square, can be divided to infinity by diagonals and diagonals of the resulting divisions with no other result than the production of squares, or parts divisible into squares.

The division by diagonals into terms of the parent form applies to any rectangle—the diagonals alone producing only constant repetition of the original. The use of a multiple of some selected unit was the basis of design from the beginning. It could be shown to be rational and correct, while the structure of everything else, at least since the Greek decadence, has rested on undetermined area division, or the still weaker foundation of individual taste, expressed without method.

This "static" arrangement is shown in a simple way in figures 1 and 2.

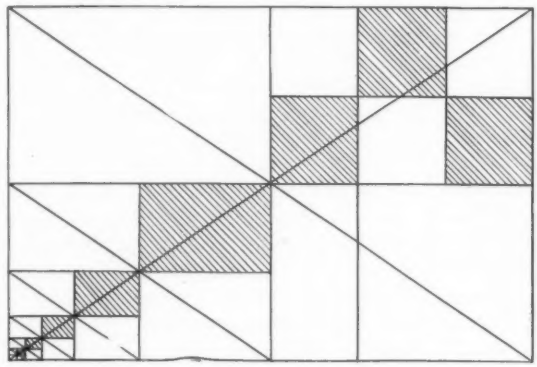

FIG. 2

1. Is a square divided by diagonals.
2. Is a rectangle containing a square and an excess composed of units of the square. The figure can be divided into squares, or into rectangles divisible into squares.

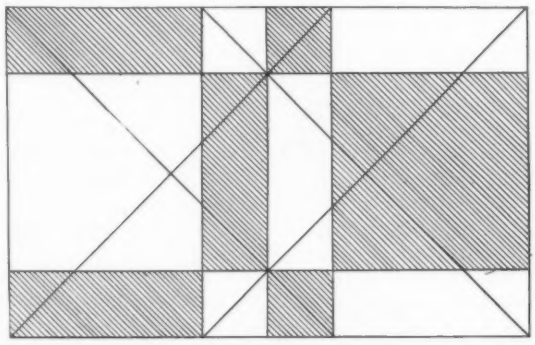

FIG. 3

A square and an excess of unknown value can, it is true, be divided into squares and rectangles, and the rectangles may or may not be like the original figure. A way to do this is shown in Fig. 3, but to determine the relation of the squares to the rectangles, and the relation of both to the whole is at least not easy. Fig. 3.

Our attention is now called by Mr. Hambidge to another method of area division. Figures 4 and 5.

If a rectangle whose sides are in extreme and mean ratio is placed within a square against one side, the square is completely filled with known elements, but they are of two kinds, a square, and rectangles alike in shape but differing in size, whose sides are in extreme and mean ratio. Certainly the interest of the space division is immensely increased by the introduction of rectangles which are understandably related to the squares. Both forms can be repeated to infinity by subdivision, but are not related in the monotonous 1-2-3-4-5 way. More than that, they are so related that the square on the end of any rectangle, is to the rectangle as 1 is to 1.6180+, the ratio of extreme and mean proportion. This figure has the same construction that is used in drawing Prop. XXX Book VI in Euclid's "Elements," which it seems has an everyday usefulness greater than had been supposed.

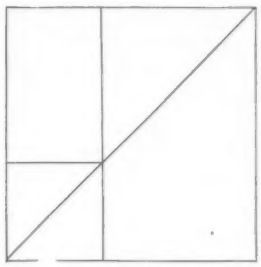

FIG. 4

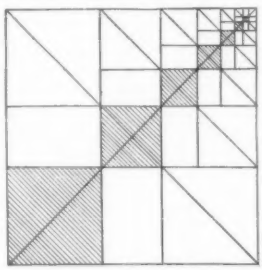

FIG. 5

Aside from the practical value of these rectangles due to their inherent quality of "measurableness," 1.6180+ and its related ratios are of the greatest interest. They seem to be the ratios of growth in plants, and if they can be shown to have a similar relation to animal forms, the inference would be justified that symmetrical arrangements of geometrical figures in these ratios are in close harmony with the laws of growth in nature.

By extending these areas into three dimensions, solids are obtained whose surfaces are obviously related.

Similar results can be obtained with rectangles whose sides are in the ratio of 1 to the square root of 5. These include the rectangle of extreme and mean ratio.

Rectangles whose sides are in the ratio of 1 to the square root of 2, and of 3 can be used in the same way, but they are apparently of less interest to the artist.

Above 1 to the square root of 5 the rectangles are so difficult to draw accurately, and are so complicated in combination, as to be seemingly of little use in practical work.

It is much too soon to arrive at fixed opinions concerning the application of this geometrical system, but three years of actual use enable one to understand something of its limitations, and of the advantage which may be gained from its use.

It may be said at once that no amount of Dynamic Symmetry will in itself create artistic forms. It is a tool, and one whose employment demands much thought and time. It is not sufficient, as some critics have supposed, to divide an area minutely, pick out haphazard a number of points, and draw a design to include them. To be of use the areas chosen must form a related series —one may almost say a rhythmical arrangement of parts.

The system intelligently used improves the artist's work by increasing the faculty for expression through the precision of science, brought to the aid of simple feeling for proportion, in other words by adding knowledge to intuition.

What dynamic symmetry does is to construct harmoniously proportioned and related rectangles, or rectangular parallelepipeds, which completely fill a rectangle, or a rectangular parallelepiped whose proportions accord with a geometrical scheme suited to the purpose.

It is evident that a design whose dimensions coincide with areas or spaces that are related to one another, and which are in a similar way related to the figure which they form collectively, must have a certain precisely determined harmony, which cannot possibly be achieved by good taste alone, working without method.

Dividing the parent figure into smaller related figures, not only enables one to use related forms, but negatively all unrelated and consequently discordant forms are thus excluded.

If anyone supposes that he can do these things by sense of proportion alone, let him draw a rectangle and then having covered it, try to draw another of the same proportions. The result will be likely to discourage any attempt to draw figures differing in size and form, but filling related areas by eye alone.

It is most improbable that a mind has ever existed, able without method, to plan a building from the ground to the roof, with all its forms based on a relationship of, say, one to the square root of five, with never a single form of discordant ratio creeping in. And yet buildings must be so planned if we are to have construction with the harmony of proportion, which has always been conceded to the Parthenon.

In the following pages, Mr. Southwick explains in detail the design of a bowl, according to the Dynamic Theory. The drawings A to F indicate the progressive method employed, while G shows the line as governing the outline of the completed bowl.—Editor.

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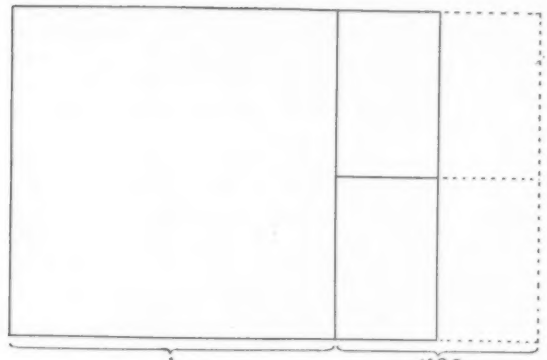
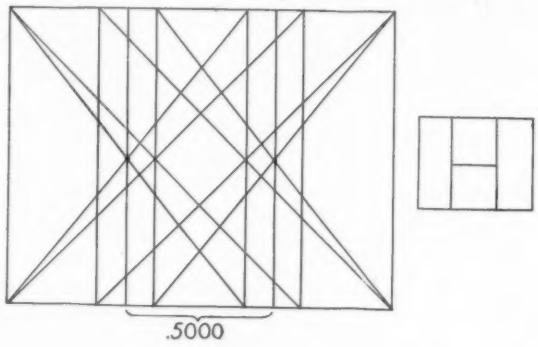


A



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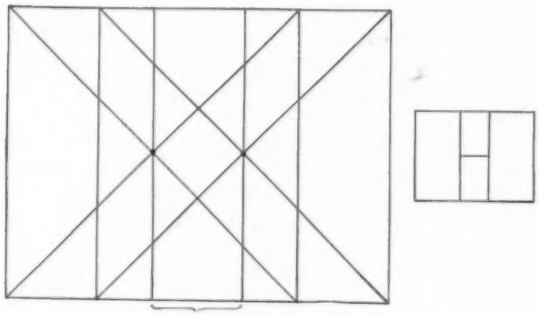

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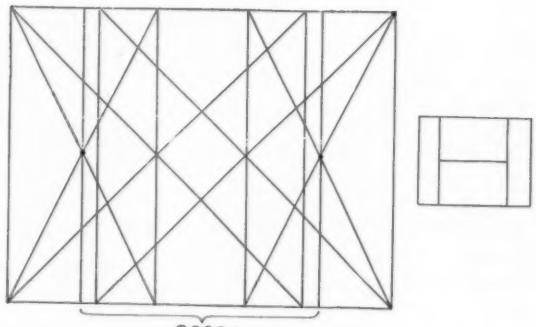

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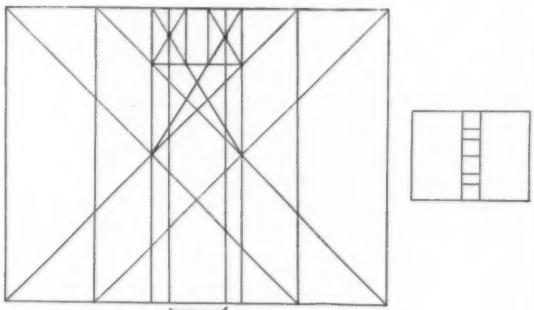

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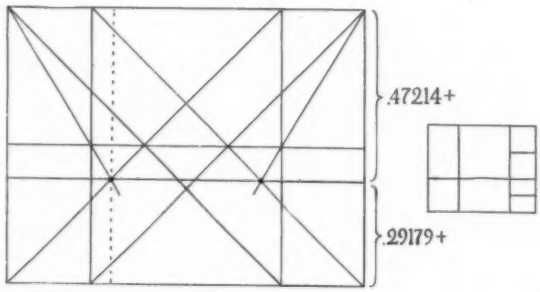
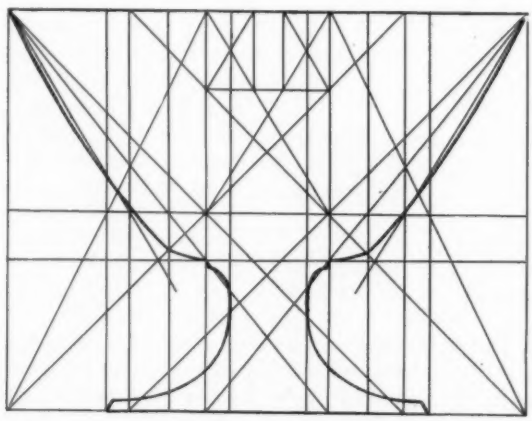


F



G

THE design on the foregoing page was made to show the extraordinary facility with which areas differing in proportion can be measured and co-ordinated.

The principal elements of the design form a sequence in extreme and mean ratio.

The width of the stem where it is narrow, is to the width where it joins the bowl as 1 is to 1.6180+ and the width at the bowl is to the width of the bowl at the angle as 1 is to 1.6180+. The width of the bowl at the angle has the same relation to the width of the foot, and this is true also of the width of the foot compared to the width of the bowl.

The Bowl

A. Is the containing rectangle. It is composed of a square and an excess which is .3090+ of the square. That is, a square, and half of a rectangle in extreme and mean ratio. The excess being equal, when divided, to two rectangles in extreme and mean ratio.

B. Has the two extreme and mean ratio rectangles transferred to the center of the containing rectangle.

C. Has a figure which is .1909+ of the square placed within the .3090+ figure. It consists of two squares, and four rectangles of extreme and mean ratio.

D. Has a figure which is .5000 of the square, or two squares, placed outside the .3090+ figure.

E. Has a figure which is .8090+ of the square placed outside the .5000 figure. It consists of two rectangles in extreme and mean ratio.

These areas are measured in thousands of a square on the short side of the containing rectangle. That is, their widths are measured in thousandths of their heights. Any one of them is 1.6180+ times the next smaller.

1.3090+÷.8090+=1.6180+
.8090+÷.5000 =1.6180+
.5000 ÷.3090+=1.6180+
.3090+÷.1909+=1.6180+

F. Has the containing rectangle divided horizontally, forming two rectangles whose areas are in extreme and mean ratio. This is indicated by an extreme and mean ratio rectangle in the end of the area containing the bowl, and a square of the same width in the end of the area containing the foot.

The upper area consists of a rectangle of extreme and mean ratio, a square and two squares.

The lower consists of a square, a rectangle of extreme and mean ratio and two rectangles of extreme and mean ratio.

These areas are .47214+ and .29179+ of a square on the long side of the containing rectangle. That is, their widths are measured in thousandths of their lengths.

.47214+÷.29179+=1.6180+

The component areas of the design form a monotonous, regularly ascending scale, which has been chosen for the reason that the relationship is more evident than it would be in a varied composition.

Whatever may be the merit from an aesthetic point of view of the particular bowl made in these proportions, it is certain that there is a definite harmony in its dimensions which can hardly be otherwise than helpful to the design.

XUM

The Roman Catholic Cathedral, Baltimore, Md.

(See reproduction of original drawing by Otto R. Eggers on opposite page).

THE Roman Catholic Cathedral in Baltimore, Md., was until the death of Cardinal Gibbons, the first Catholic diocese in the United States. In this Cathedral was held among other notable gatherings, the Third Plenary Council. The Cathedral was built in the early part of the nineteenth century and is remarkable for the fine simplicity of its design and the good proportions of its parts. Mr. Eggers has happily chosen a point of view that shows these marked characteristics in a most artistic manner.

The architectural excellence that marks this edifice can also be found in many contemporaneous churches built along the Atlantic Seaboard. No better examples of our early American architecture can anywhere be found.

THE CATHEDRAL, BALTIMORE, MD.
THE AMERICAN ARCHITECT Series of Early American Architecture

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·EDITORIAL·COMMENT·

Taller Buildings for London

THE question of higher buildings for London is being debated in the English architectural and engineering societies. The London architectural journals are giving considerable space to this matter of changing London's skyline. Under a scheme now formulating, permission will be asked to erect buildings to a height of 120 feet, or where streets face parks or the river, to an extreme of 150 feet. The present London building act limits the heights of buildings to 80 feet above the street level. This restriction, it is claimed, prevents the expansion demanded by the increasing trade of the large West End and other London stores.

It is, of course, interesting to learn the attitude of the organized architectural profession towards so radical a change. As would be supposed, our conservative brethren across the water are moving with considerable caution, a caution which amounts to slowness that may eventually cause them to be left outside the argument. While this attitude of caution has some things to recommend it, possibly it may be carried to a point that will mean stubborn dissent to a forward movement, the very impetus of which may not be successfully resisted. While a committee of the R. I. B. A. has pronounced in favor of the movement, Mr. Paul Waterhouse, the president, in a statement printed in the London *Times,* directs attention to the fact that there also has been presented a minority report strongly disagreeing.

As the Council of the R. I. B. A. has failed to take any definite stand in the matter, it is premature to state that the Institute is favorably disposed towards the proposed extension of heights.

The Society of Architects, on the other hand, if we are to assume the views of its secretary as representative of its joint opinion, seems to regard the present restriction of 80 feet as an antiquated regulation, and is all for a higher skyline and more modern methods.

EVERY New Yorker who can visualize his city before the day of tall buildings, will recall the many protests that crowded the editorial pages of daily papers when the tall steel frames of projected buildings went skyward. The effect of these tall structures standing alone in a neighborhood of older and lower buildings was something that every one then believed was to ruin the effect of this city.

As methods of construction became perfected, and as solid character of the foundation of Manhattan Island became better known, the tall building appeared in rapidly increasing numbers until lower Manhattan Island, as it greets the stranger who enters our harbor, is one of the wonders of the world. Its splendid massing and picturesqueness cannot be questioned.

Later, when it was seen that the indiscriminate placing of tall buildings was working harm to certain previously well restricted localities, this city enacted a well considered zoning law. The whole scheme is daily working out to good advantage. New York's tall buildings, with their "step backs" are no longer regarded as encroachments for they may not now encroach.

What New York has accomplished and what other cities in this country are doing in following New York's example may be accomplished in London.

It was a firm of American architects that erected the first tall building in London. That structure is becoming a well liked landmark. If all the other tall buildings that will undoubtedly be reared in London are as artistically conceived, even the most conservative Londoner will have nothing to regret.

DESIRING to get an expression of opinion on this matter of higher buildings for London that would be authoritative, we sought and obtained an interview with Mr. Harvey Wiley Corbett, of the architectural firm of Helmle and Corbett, the architects of the Bush Building in London, recently illustrated in this journal. Mr. Corbett, during the course of this interview, said substantially as follows:—

"The London Building Act permits building to go a vertical height of 80 feet on the street front and an additional two stories back of a sloping Mansard roof. This makes possible an eight or nine story structure. Now, why does London want higher buildings?

"There are only three reasons why any city wants higher buildings. First, property owners with particularly favored terrains, desire a greater income on their land than the existing laws enable them to secure. Second, more space needed for business than can be built under the present restrictions, and, third, greater architectural variety in the skyline.

"The first is, of course, the most important reason, and up to the present time, the only one that has resulted in high buildings in any city.

"A general and erroneous impression is that New York has high buildings because it is located on a narrow Island and with no room to expand laterally, was compelled to push up vertically. The observer has but to walk only a few blocks East or West from Broadway or Fifth Avenue,

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on any part of their entire length, to become convinced that there was no lack of any room for lateral expansion.

"A similar scrutiny of London with its three and four story buildings, even in the busiest business centers, will result in the conviction that existing laws will permit the erection of nine story buildings where the present four story structures now stand. Here is the answer to the question 'Why does London want higher buildings?'

"I said there were but three reasons for high buildings. We have disposed of the first and second. The third has a popular appeal, which is the question of greater architectural variety in the skyline. Can it be possible that New York has so set the fashion in this respect that even the conservative Britisher wants his London to be like New York? The thought is not believable.

"Looking at the problem from another angle, we must take into consideration the fact that London is built on clay. High buildings, as we in this country know them, the Woolworth, the Metropolitan Tower, the Bush Building, would be structurally impossible in London. Of course, a height of 150 feet could be realized, but this would not produce a brilliant, scintillating skyline such as we have here, but would only result in creating darkened streets, increasing congestion in already overcrowded thoroughfares, and would make London, now unique among the cities of the world for its impression of openness and air, its flowers and green spots at every turn, and its quaint, old-fashioned atmosphere, as commonplace and commercial as any of our own American cities. I am confident no architect would want to see such a change, and so far as I am aware, nothing has occurred to make such a change possible. Certain variations from the London Building Act are now possible for the creation of good architectural effect. Towers, domes, gables may extend a moderate height beyond the height fixed by law, but London can be just as practical a city, just as commercial a city and certainly a healthier, brighter and more distinctive city with her present Building Act in force as it is.

"Why, in the name of all that is reasonable, must London start and do the very thing New York is trying to stop doing? We have gone so far here, we may never get back. Why, then, start London on a similar downward (or should I say upward) path? This is one case where I hope with all my heart that the conventional British point of view of 'letting well enough alone' will prevail."

The Washington State Architect

THE first issue,—under the editorial direction of Eaton H. Edgerton,—of *The Washington State Architect,* the official organ of the Washington State Society of Architects, has been received. It indicates that it represents a most wide-awake and efficiently working organization, and presents a further good example of what may be accomplished when a State Society is properly organized and where its members are alive to the duties of their profession.

R. Hamilton Rowe, president of the Society, contributes the leading article. In it he states:—

"The Washington State Society of Architects is about to enter a new year of its existence and I believe that now is an opportune time to acquaint the members of the architectural profession, who are not affiliated with this organization, and also the general public, with its hopes, aims and aspirations, that brought about its being and which will continue to be its controlling influence.

"Architects of the State of Washington had long realized a need of an unhampered local state body; a body so organized as to permit a close co-operation of its members in upholding the high standard of architectural practice.

"They recognize The American Institute of Architects as performing this function nationally, but also they felt as our forefathers did when they framed the Constitution of the United States of America; that a national body did not and could not localize itself without detriment to its national functions, as we do not obtain our highest ideals by the practice of architecture alone but by maintaining our responsibility to the community and the state in which we live and labor."

It seems to us that the foregoing statement presents the main reason why a State Society has right to existence. That a national body cannot localize itself without impairment of its national functions is exactly true. Good citizenship is not alone the strict adherence to our national duty. We approach the nearest to our highest ideals, when we equally maintain our responsibilities to our state and community.

No well wisher of the profession of architecture would willingly agree to any impairment of the dignities of the Institute. But those dignities are purely national, and where they relate to the local administration of matters architectural, this journal has long been in favor of State Societies and for that reason it has also long advocated their organization in every state. Such organization, while not necessitating the disbandment of chapters, should logically work in that direction. Many believe that the nationalization of the Institute would be best secured by working through State Societies and this belief is the logical result of a series of years' existence of State Societies. These societies, wherever they have been organized, have proved their right to existence and their large constructive value to the profession in their various states.

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AEROPLANE VIEW—SHOWING (UPPER BUILDING) THE COMPLETED "QUADRANGLE"—A GROUP OF DORMITORIES FOR WELLESLEY COLLEGE STARTED IN 1903, AND JUST COMPLETED BY THE ADDITION OF A CONNECTING LINK ACROSS THE FRONT OF GROUP

J. A. SCHWEINFURTH, ARCHITECT OF THE "QUADRANGLE"

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ADDITIONS TO DORMITORY GROUP, WELLESLEY COLLEGE, WELLESLEY, MASS.

J. A. SCHWEINFURTH, ARCHITECT

THE connecting link between Cazenove Hall on the left and Pomeroy Hall on the right of "The Quadrangle," recently finished, completes this group of dormitories for Wellesley College. The first one of the group of four buildings was started in 1903, the donor of this building stipulating that the building should be in the Elizabethan style, fixed the style of the whole group. Housed here are about four hundred students, with various recreation rooms or parlours, and a dining room, kitchen, serving room, etc., in each separate building, and suites for visiting guests, rooms for servants and janitors, and for members of the Faculty, together with the usual toilet accommodations. The material used is red waterstruck brick and Indiana limestone, with green slate roofs. The copper roofs of the tourelles of each of the four main towers of the group, and the lantern over the tower of the center of the connecting link, have turned a light greenish copper blue. A photographic view from an airplane gives a general view of the group.

ADDITIONS TO DORMITORY GROUP, WELLESLEY COLLEGE, WELLESLEY, MASS.

J. A. SCHWEINFURTH, ARCHITECT

VIEW OF FRONT ON CENTRAL STREET—POMEROY HALL ON LEFT, CAZENOVE HALL ON RIGHT

ADDITIONS TO DORMITORY GROUP, WELLESLEY COLLEGE. WELLESLEY, MASS.

J. A. SCHWEINFURTH, ARCHITECT

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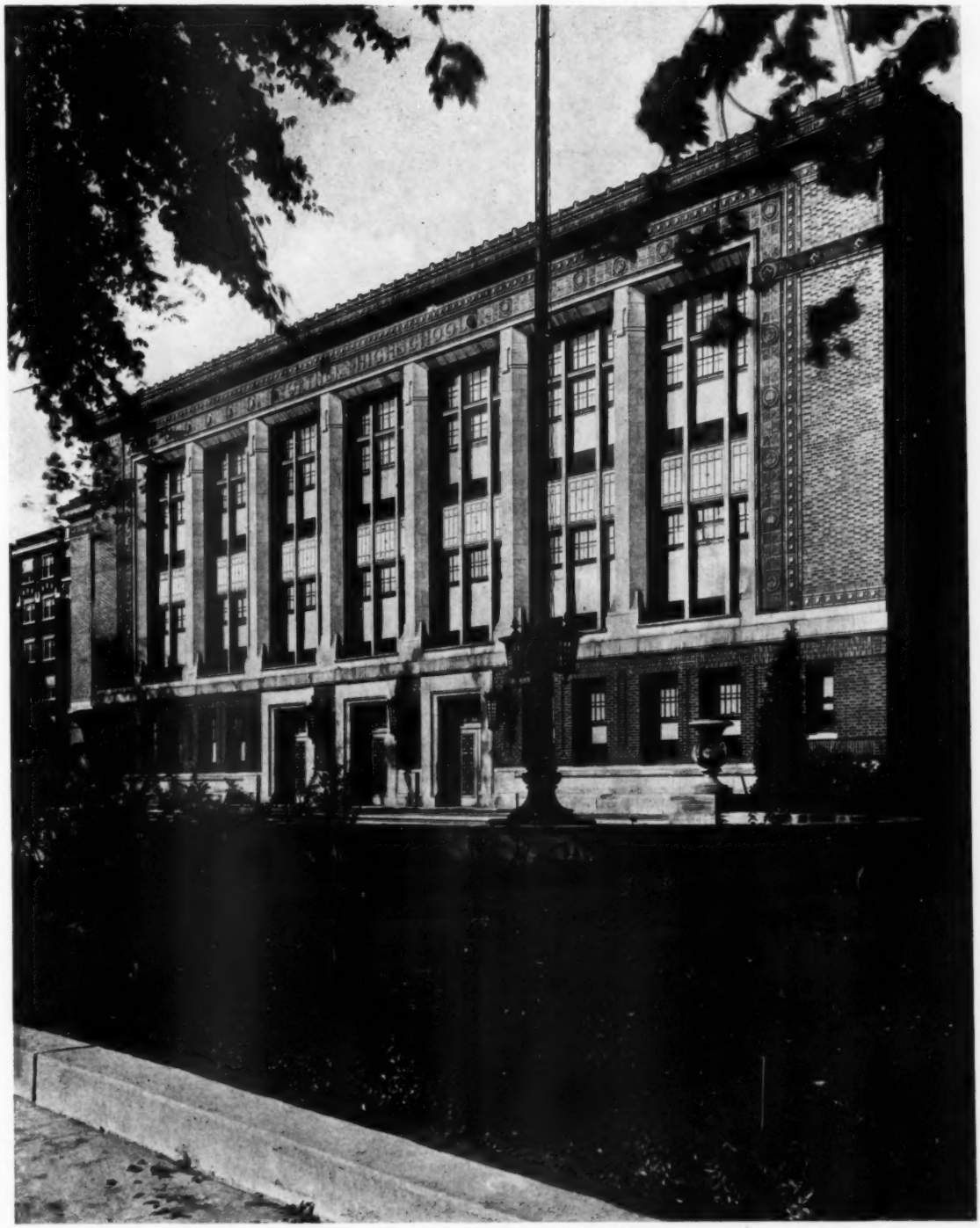
VOL. CXXI, NO. 2385

JANUARY 18, 1922

ADDITIONS TO DORMITORY GROUP, WELLESLEY COLLEGE, WELLESLEY, MASS.

J. A. SCHWEINFURTH, ARCHITECT

VIEW IN LOGGIA, SHOWING SHAFFER HALL IN DISTANCE



NORTH WOODWARD HIGH SCHOOL, DETROIT, MICH.

MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS

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NORTH WOODWARD HIGH SCHOOL, DETROIT, MICH.

MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS

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NORTH WOODWARD HIGH SCHOOL, DETROIT, MICH.

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AN ENTRANCE DETAIL

NORTH WOODWARD HIGH SCHOOL, DETROIT, MICH.

MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS

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HOUSE OF PHILIP W. HENRY, ESQ., SCARBORO, N. Y.

BERTRAM G. GOODHUE, ARCHITECT

INTERIOR VIEW

HOUSE OF PHILIP W. HENRY, ESQ., SCARBORO, N. Y.

BERTRAM G. GOODHUE, ARCHITECT

HOUSE OF EUGENE KIENLE, ESQ., GREAT NECK, L. I., N. Y.

WM. H. GOMPERT, ARCHITECT

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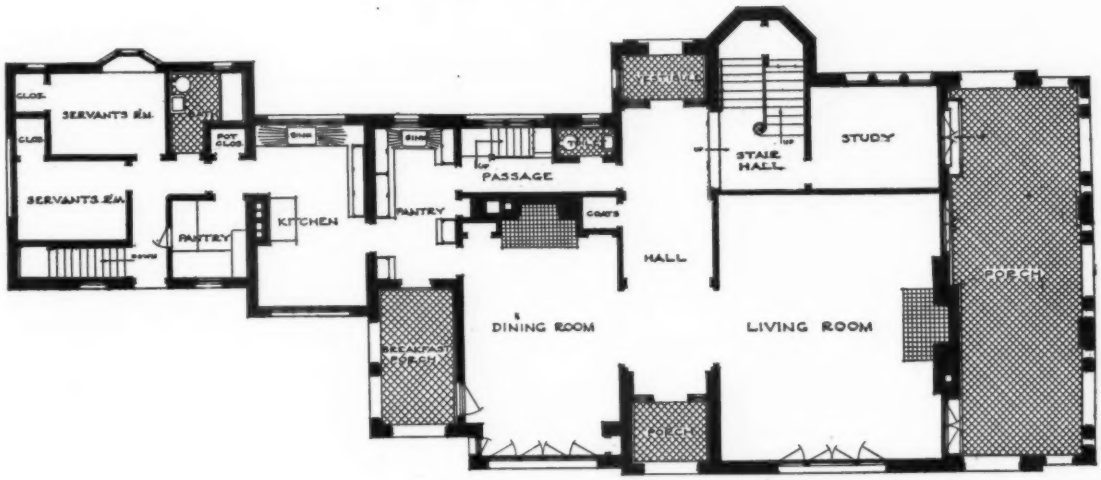
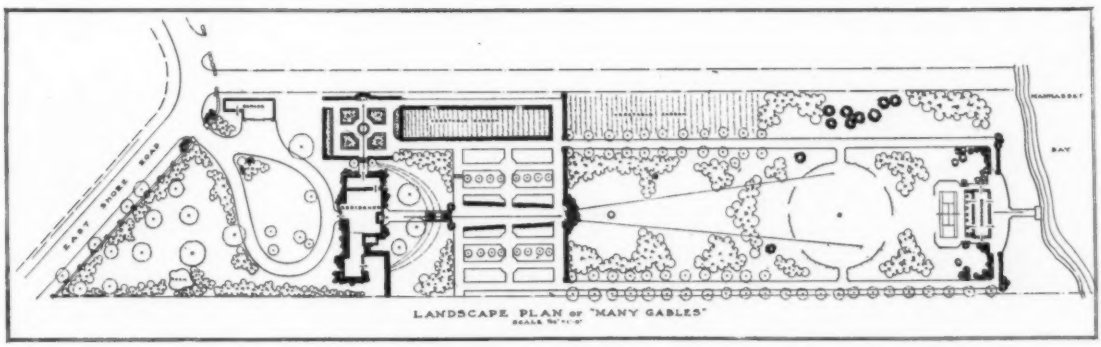
SECOND FLOOR PLAN



FIRST FLOOR PLAN



HOUSE OF EUGENE KIENLE, ESQ., GREAT NECK, L. I., N. Y.

WM. H. GOMPERT, ARCHITECT

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HOUSE AND GARAGE OF EUGENE KIENLE, ESQ., GREAT NECK, L. I., N. Y.

WM. H. GOMPERT, ARCHITECT

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HOUSE OF EUGENE KIENLE, ESQ., GREAT NECK, L. I., N. Y.

WM. H. GOMPERT, ARCHITECT

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VOL. CXXI, NO. 2385

JANUARY 18, 1922

DETAIL, MAIN ENTRANCE, WOMAN'S ART BUILDING, INDIANAPOLIS, IND.

CHARLES W. NICOL, ARCHITECT

EXHIBITION OF AMERICAN ARCHITECTURE IN LONDON

THE Exhibition of American architecture in the galleries of the Royal Institute of British Architects was formally opened by Lady Astor, on November 23, 1921. We learn from *The Architect's Journal,* that the keenest interest was displayed, and that among those present were Mr. Bertram G. Goodhue and Mr. Donn Barber.

The Architect's Journal, in a long and highly appreciative review of the exhibition states in part as follows:

Not only is this exhibition varied and comprehensive, it is also invested with a thoughtful significance, for it illustrates not merely the ultra-modern aspect of American architecture, but also its equally interesting evolution from the more sedate examples of the Mission style period.

As architects, we might wish for more plans and sections; but it is not a serious defect, the photographs which make up the bulk of the exhibition fulfilling their task uncommonly well. And here let me praise the excellence of most of these photos, not only on the specific ground of adequate presentation, but of artistic consummation as well. What could better convey the great qualities of scholarly forethought, of grandeur latent in so many American buildings, than the photos of the vestibule to the General Post Office, New York, by Welles Bosworth, or the two really fine prints showing respectively John Russell Pope's Scottish Rite Temple taken by night, or his Leeds Mausoleum? These are indeed beautiful, and it is not so moot or trivial a point as not to be worthy of a distinct acknowledgement, because the sooner English architects realize not so much the obvious advantage of having faithful records of their works in the guise of photographs, but that such photographs should be taken by a man blessed with especial selective powers as well as technical skill, the better for them.

The exhibits are grouped under individual headings, as it were, and the system works clearly. Delano and Aldrich in "Residence of Bertram Work, Oyster Bay," show their power of restraint and their fond love of refinements. The façade is simple, the details and surroundings have been profoundly studied, and the result is a lasting success. The "Façade to the Winthrop House" is another instance of identical qualities yielding identical results. Both these elevations are gems of domestic architecture. The singular Louis Sullivan is represented by the now familiar exterior of the National Farmers' Bank, Owatonna. The "Water Garden Pavilion" of Arthur Heim, with its long, rectangular pond well backed by the pavilion, is worthy of notice; the three open bays, capped with their low-pitched roof of tremendous overhang, make an immediate appeal, which is partly due to the corner treatment of double piers and to the fanciful decoration of the bays.

The "Institute of Technology," by Welles Bosworth will repay close scrutiny, especially the vestibule. Observe the able distribution of its gigantic Doric columns, the frieze over the doorways—which frieze, by its mere introduction, adds a secondary rhythm of great charm—the elaborate coffering and beam treatment. When so convincingly carried out, there is much to be said for this almost unmitigated use of antique formulæ, for here it is made in the full enjoyment of much sure knowledge, and in no way does it ever traverse structural requirements.

The next architects are prolific exhibitors. No fewer than twenty photos and drawings give us further instances—if such are necessary—of the great accomplishments of McKim, Mead, and White. Beside such landmarks as the Pennsylvania Railway Station, or the Pierpont Morgan Library, N. Y., there are others which, if less known to European critics and admirers, are notable efforts. "Houses for Geraldyn Redmond and Countess De Langier-Villars, N. Y.," is a case in point. Greater effectiveness shall seldom be achieved; the handsome and huge roof, broken by substantial chimney-stacks, and with its clever arrangement of dormers, the whole surmounting a plain ashlar façade of noble proportions, of which not the least interest centres in the excellent fenestration, or the elevation of the "Century Club, N. Y.," in a pencil, pen-and-ink, and wash drawing of much charm.

An eminent architect once gave it as his considered opinion that more than anybody else John Russell Pope is being looked up to by the younger bloods of America, and it is not difficult to see many reasons for this in the few, but for all that the extremely significant, photographs which display the scope of his genius. The "Scottish Rite Temple" may or may not be the best choice, but if it isn't, then the blame for picking up the wrong plum must be laid at the door of the photographer or of the artist responsible for the beautiful perspective drawing. The photos have been seen before in our professional periodicals, but it is nevertheless a pleasure to see them again, especially as the exterior of this temple is illustrated by the photo taken in daytime and another

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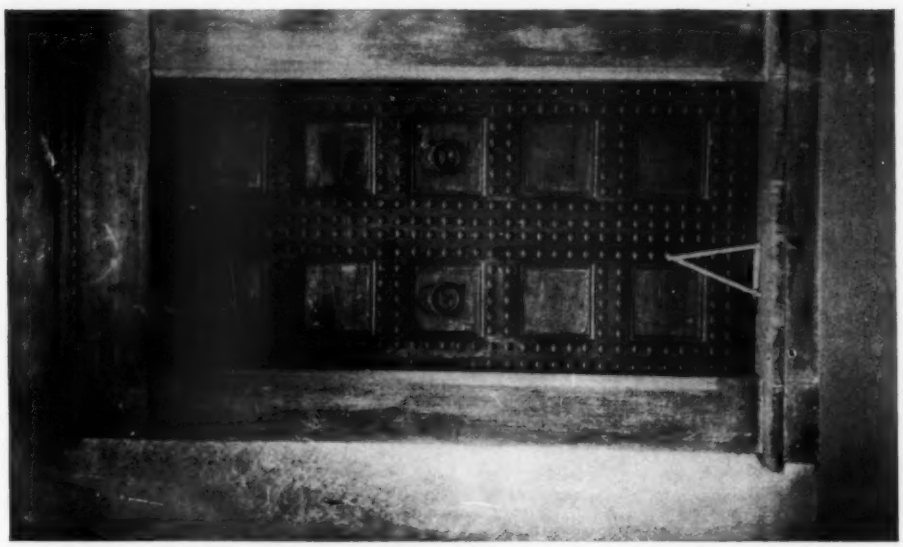
taken at night from the very same point of view. And this last one it is which brings in its trail many suggestions of indubitable possibilities, inasmuch as it actually throws light on a fascinating side of architectural effect—that of artificial lighting. This effect, very obviously, can only be dealt with in a set article, but it is enough to say that this photograph adumbrates in a most pregnant way great possibilities. This "Scottish Rite Temple," as seen by night, is truly invested with a fantastical touch, with a quickened sense of ethereal vitality which it must surely lack in the more searching and prosaic light of day.

That American architects are not insensible to this powerful aid of artificial lighting is made apparent whenever they have to bring into being an international exhibition. Both the St. Louis and the Pan-American Exhibitions were made far more alluring by this frank and insistent use of it, and a recent striking drawing by Ferris (I believe) of a 1,000 ft. tower to some semi-ecclesiastical building by Cram and Goodhue fired the imagination the more easily by the artist's handling of dramatic effects so obtained. But John Russell Pope's more architectural power is best illustrated in a photo which shows the entrance to the Leeds Mausoleum. Probably it is a building of such obvious artistic value that so attracts the younger architects by the sparing use of mouldings, the originality of its frieze of wreaths taking the place of triglyphs and yet retaining the usual "guttæ" under the fillet, by the exceptionally fine low-relief carving over the doorway, with the entire building made to surrender its almost majestic loveliness by so chaste a glomeration of details being embodied and held in so virile an expanse of otherwise unadorned stonework.

An exotic fountain to one of the patios that act as refreshing focci to the Pan-American Exhibition is indeed pleasant. But one still misses the intractable charm of Paul Cret's drawings of it, as they were published a few years ago. Stress has been laid on the scholarly refinement of so many eminent American architects. It shall be carried further, for Carrère and Hastings are naturally expected to show definite signs of it, and they, in fact, do so in "An Art Gallery for T. Ryan, N. Y.," with a bold use of sgraffito in the open loggia of the first floor. Whatever slight weaknesses are revealed in the treatment of pilasters or spandrels are more than counter-balanced by the masterly ground floor. The farther gallery has as much interesting material in store. If "Allen House," by Charles Berg, betray too conscious a partiality for heterogeneous materials, this fault of overdoing the "texture stunt" cannot be levelled at Mellor, Meigs, and Howe, in the photos they show of the "Residence of George Howe." Here, one is face to face with an exceptionally firm appreciation of stonework as applied to a domestic building of a more luxurious character; the incorporation of brick in it being especially happy and discreet, and it does not rob the balcony and pond below of our full meed of admiration for an exceptional piece of design.

Well, such a kaleidoscopic review of so many photographs—there are over 300—sooner or later jades the nerves. I cannot suggest a better way of titilating them once more than by advising the onlooker to bring his attention to bear on some of the drawings and rendered perspectives. There is, already alluded to, an "Institute of Technology;" this handsome monochrome drawing, some 5 ft. by 4 ft. 6 in., is a fine formal "rendu" in the French manner. And there are two other remarkable drawings; one, of the "Scottish Rite Temple" is extraordinary effective. Drawn and colored on grey paper, it exhibits very few tricks, and throws much credit on that consummate architectural artist, O. R. Eggers. As to "General View of Panama—California Exposition," beside being the largest drawing on view, being at least 6 ft. long, it unmistakably betrays the influence Charles Guérin had, and probably still has, on his lesser satellites. This is not merely a vast exercise in tree rendering, or in luminosity, but a coherent and solid contribution to architectural rendering, and whosoever is afflicted with the strange malady of wanting to—or having to—render ambitious drawings should have a sustained look at it, gloss over its few defects and dwell at length upon its brilliant qualities, not because it is a Guérin (probably it isn't), but because it does not overdwarf the architectural buildings, but frames them in a grand, sumptuous and satisfying manner.



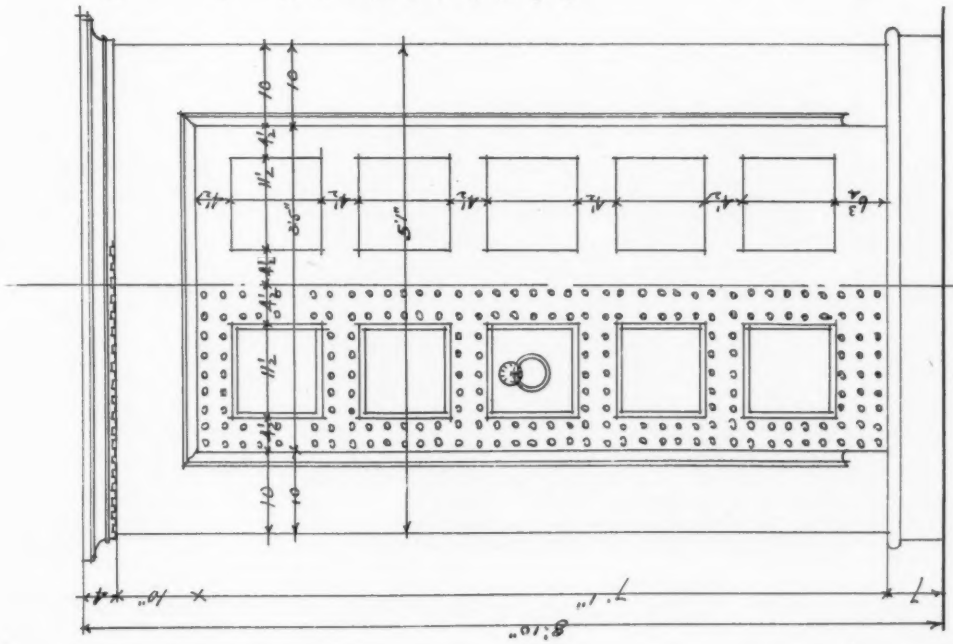
Door at the Head of the Stairs
Cloister of San Lorenzo,
Florence, Italy

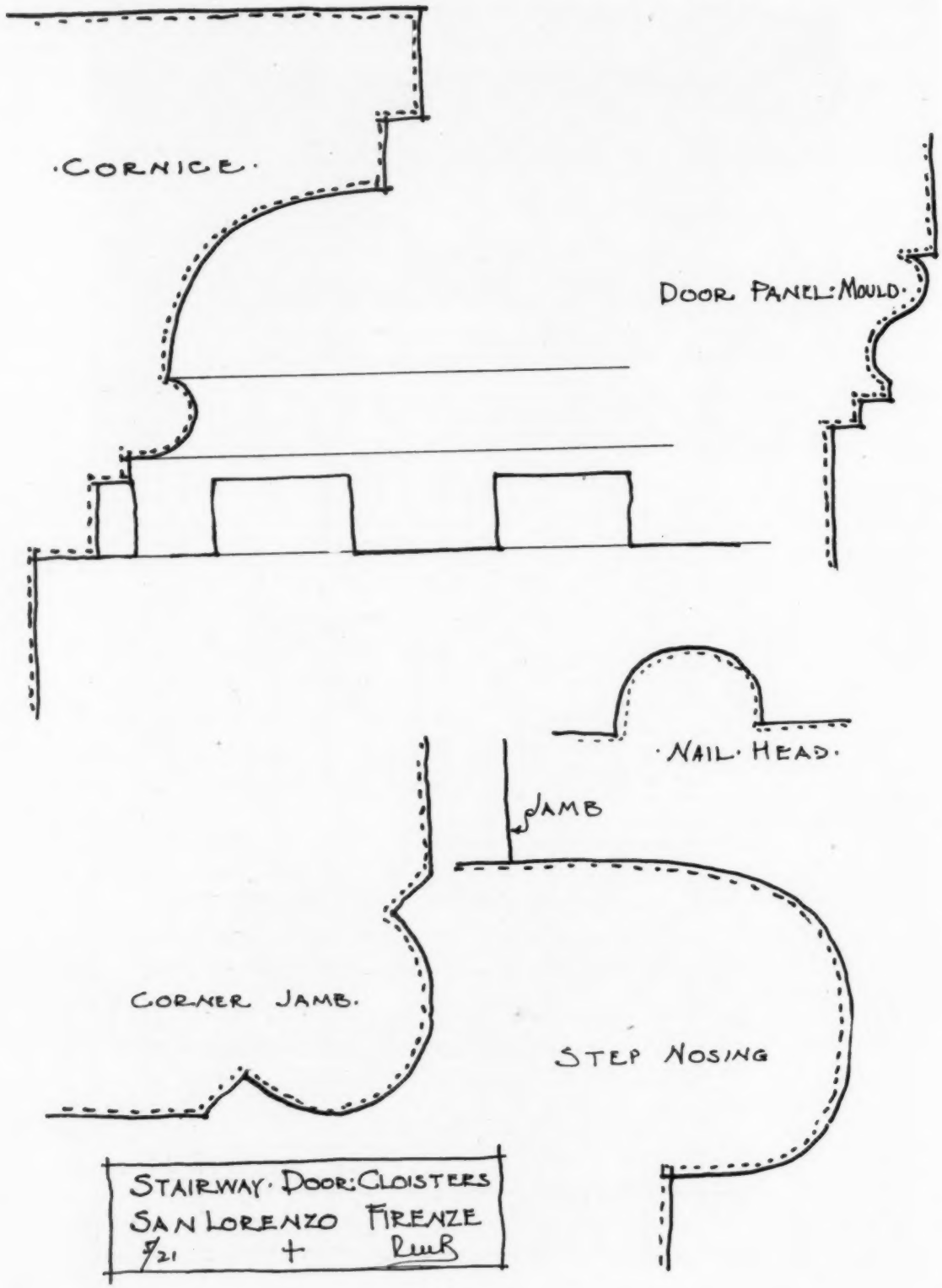
THE cloisters of San Lorenzo, which are attributed to Filippo Brunelleschi and were built about 1425, contain many doorways of a type found frequently in Florence. This type, of which this door is an example, is at the head of the stairway between the two levels of the cloister. It has a simple flat architrave with a round corner and a cornice composed of a half round and a dentil course.

MEASURED AND DRAWN BY ROBERT M. BLACKALL

THIRTY-FIFTH HOLDER OF ROTCH TRAVELING SCHOLARSHIP

THE AMERICAN ARCHITECT SERIES II. FRENCH & ITALIAN DETAILS





MEASURED AND DRAWN BY ROBERT M. BLACKALL, 35TH HOLDER OF ROTCH TRAVELING SCHOLARSHIP

THE AMERICAN ARCHITECT, SERIES II.
FRENCH AND ITALIAN DETAILS

HUGH NAWN CONTRACTING CO. BUILDING, BOSTON, MASS.
J. A. SCHWEINFURTH, ARCHITECT

ENTRANCE DETAIL
HUGH NAWN CONTRACTING CO. BUILDING, BOSTON, MASS.
J. A. SCHWEINFURTH, ARCHITECT

TERRE HAUTE COUNTRY CLUB HOUSE, ALLENDALE, TERRE HAUTE, IND.

JOHNSON, MILLER & MILLER, ARCHITECTS

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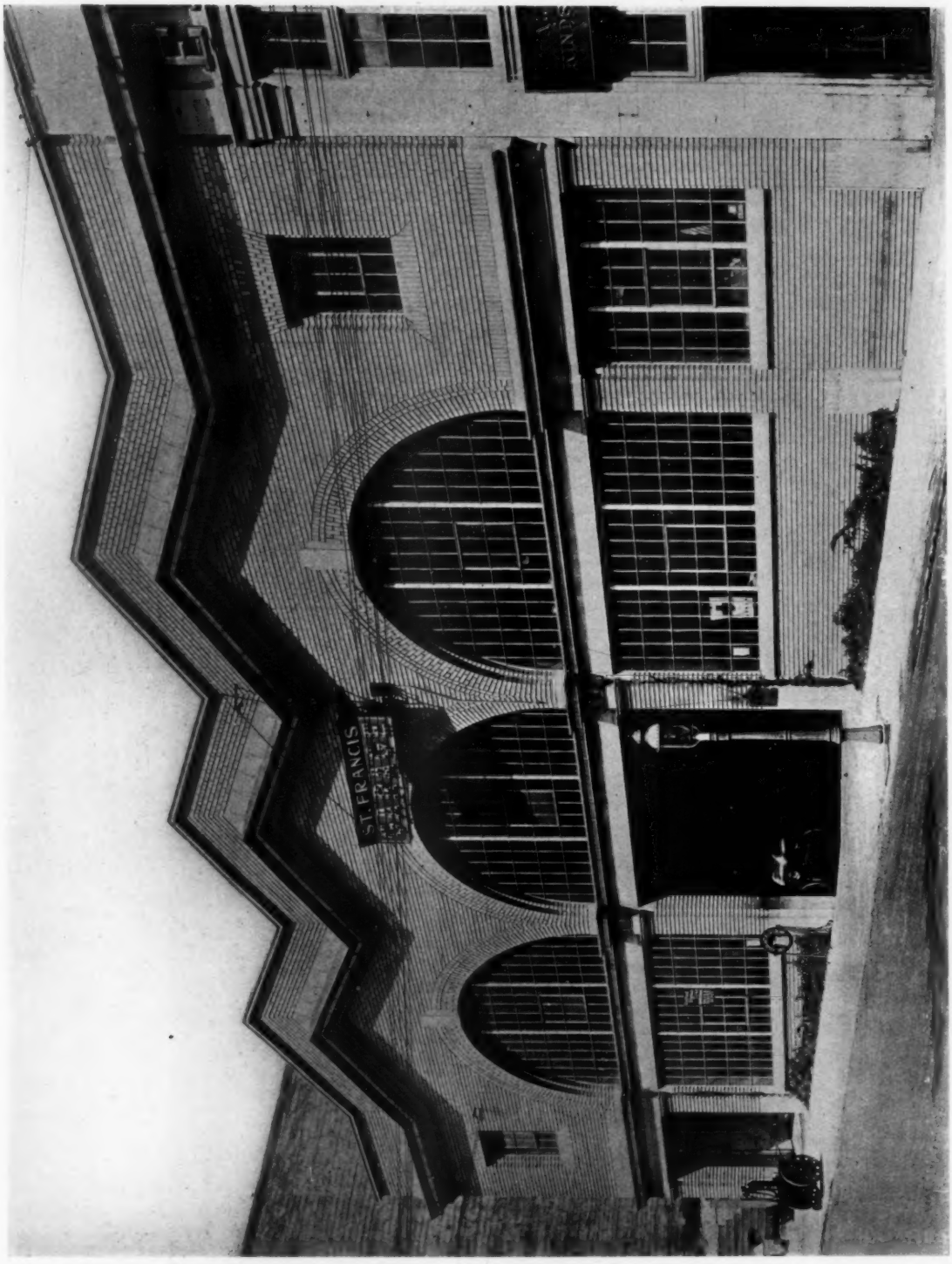
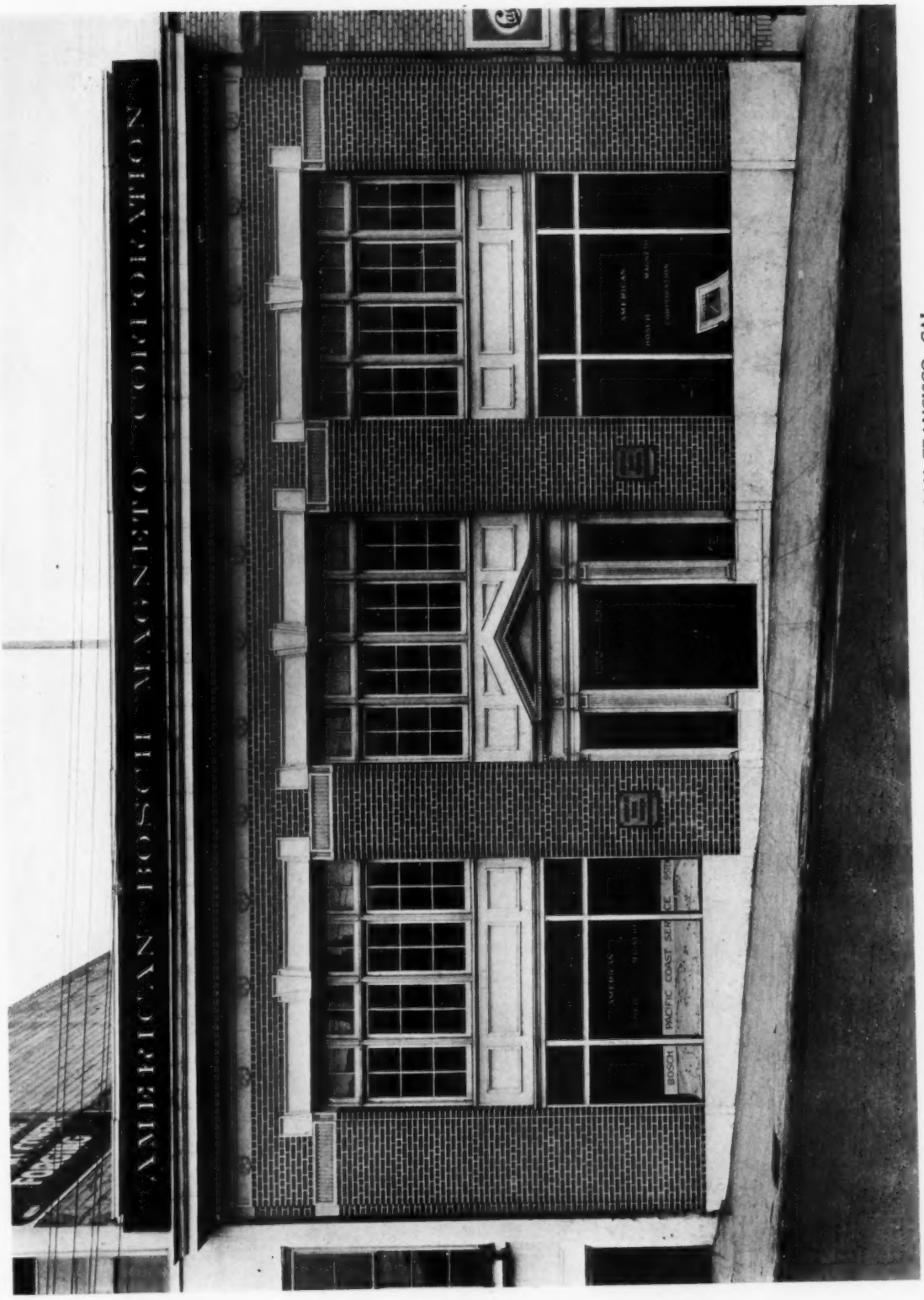


GARAGE BUILDING FOR HECHT INVESTMENT CO., SAN FRANCISCO, CAL.
SYLVAIN SCHNAITTACHER, ARCHITECT



BUILDING FOR AMERICAN BOSCH MAGNETO CO., SAN FRANCISCO, CAL.

SYLVAIN SCHNAITTACHER, ARCHITECT

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ALTERATIONS TO SOUTH CONGREGATIONAL CHURCH, PITTSFIELD, MASS.

HARDING & SEAVER, ARCHITECTS

HOUSE OF MARSHALL HAYWOOD, ESQ., LAFAYETTE, IND.
CHARLES W. NICOL, ARCHITECT

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DEPARTMENT OF SPECIFICATIONS

FOUNDATIONS (*Continued*)
CAISSONS

AS in the case of other types of foundations one of the preliminary matters requiring attention when writing specifications for caisson foundations is the nature of the soil. Accurate information regarding this item should be given in the specifications as it very greatly concerns the method of operation and, in consequence, the cost of the work.

There are two types of caisson foundations in use. One type is the pneumatic caisson, which is used in the placing of foundations in or below the water level and where quick-sand or water-bearing soil is present. The second type is what has been termed the open well or "Chicago" type, for which dry wells are dug and then filled with concrete. The open well type of caissons will be discussed first.

The design of open well caisson foundations will determine the location, diameter, amount of reinforcement required and, to some extent, the depth required. It also will determine the number of bells that will be required.

All center lines and elevations of caisson tops should be laid out by a competent surveyor when excavation is started, the centers should be checked after the first set of lagging is placed, the elevations of bottom of wells and of all intermediate bells should be checked when excavation work is completed and the elevation of top of caisson should be checked when concreting approaches within two feet of the top. The specifications cannot be too rigorous in the matter of survey and checking of elevations and centers as errors have been known to occur even where the checking of measurements was thought to have been done carefully.

If caissons are to be paid for by the cubic yard of concrete placed—and this is the more usual method of payment, for it is hard to determine the correct elevations of bottoms of all caissons before excavations are made—the correct elevations are, of course, necessary for the computation of quantities. At times negligence has permitted the concreting of caissons above the proper top level and aside from the expense of removing the excess concrete, the delay and annoyance caused by such an error should not be allowed to occur.

Since the drawings will fix the diameter of caissons, the specifications need only state that all diameters must be the diameter inside of the lagging. The top of caissons should be brought to a level one inch below the bottom of the column base or the steel grillage under the base.

Caissons must extend down to firm soil of the desired character. Boring explorations will have determined the probable depths of the soil having desired bearing power and the specifications will require that caissons extend to depth approved by the architect, as more fully discussed later.

Lagging must be formed out of sound lumber, should be either two inches or three inches thick, not over six inches wide and with sides parallel and beveled to radius line. The ends of lagging should be cut at right angles to sides. Lagging should not exceed five feet in length and shorter lengths must be provided for soils that are of such a loose character that will not permit unrestrained sides of that height.

The rings for holding the lagging in position must be heavy steel bars and since they must be set in place after lagging is installed, they must be formed in two perfect half-circles, with ends flanged and punched for bolts. For size of the rings the specifications need only require that the cross-sectional area be sufficient for resistance of the soil pressure.

FOR well excavation in soils of a porous nature, especially where such soils overlay a bed of clay, through which the caissons will pass, ground—or surface-water may cause difficulty by seeping through the lagging. If it is known, or reasonably believed, that such condition will occur it will be necessary to specify the construction of a cofferdam. This may be accomplished by driving a row of lagging, as the first row, into the ground down to and into clay at least six inches. As caissons are usually started from the excavated basement level this may be easily accomplished. Then a second row of lagging is driven about two feet outside of and concentric with the first row of lagging. The annular space between rows of lagging is then excavated to clay and the space filled with clay obtained from the caisson well. This clay fill must be puddled, rammed and tamped compactly to make it watertight. Circumstances may arise where lagging cannot be driven to clay because of its depth, in which case the means of excluding water in the most suitable manner must be studied and stated in the specifications. But water must be kept out of the wells by some effective means.

Because of the danger of bulging of lagging and consequent menace to the lives of the workmen digging or placing the concrete, it is necessary that work be carried on continuously from the time excavation is started to the time concreting is completed. This will require that the specifi-

cations call for continuous work, in eight hour shifts. Sunday work, that is, from midnight Saturday to midnight Sunday, may be omitted and similarly for work on holidays, unless conditions require otherwise.

The caisson wells must be excavated to exact diameter, equal to the designed diameter of the caissons plus the thickness of the lagging and this diameter maintained throughout the length of the caisson except where bells occur.

The first row of lagging must be started exactly plumb and true to circular form and the rings checked for size and trueness to circle. As excavation proceeds the successive sets of lagging must be placed as soon as the proper depth has been reached. Excavation must be kept exactly true to circle and where excess soil has been removed the cavities or voids must be filled with clay, rammed in place. After each set of lagging is placed it must be plumbed and checked for inside diameter and each ring must be checked. Whenever necessary the rings must be wedged to force the lagging against the sides of the well so that the earth, at all points will be restrained sufficiently to prevent bulging and collapse.

Three inch lagging should be used in soils of loose character and two inch lagging in stiff soils, such as clay.

Frequently caisson wells must be placed alongside tall structures, the foundations of which do not extend to depths equal to those of the new structure. Again, in such a location it may be that soil such as saturated clay or quick-sand, or even water, may be encountered unexpectedly. For any of such circumstances the open wells may be carried down as far as conditions permit, from which point steel piling, steel drums or some form of pneumatic caisson construction must be resorted to. If steel piling or steel drums are to be used, it then becomes necessary to decrease the diameter of the caisson an amount sufficient to permit the installation of such devices. This may involve difficulty in the matter of engineering design, but ordinarily the previous soil surveys will have shown that these conditions were to be expected and the upper or open well part of the caisson designed for greater diameter to permit of the required offsets.

Where conditions, as above outlined, are known beforehand the specifications can be written so they may be properly cared for; however it is advisable in all open well specifications to require the contractor to provide such other devices for holding sides of caissons and for excavating to desired depth as may be necessary. Provision for extra compensation must be made unless the specifications specifically provide for such devices or methods for certain portions of the work. Otherwise unhappy disputes regarding costs will arise and no time can be lost in argument while foundation construction of such a precarious nature is under way.

WHEN the depth of wells approaches the anticipated levels careful inspection of the soil must be made and when soil of the desired quality has been reached and the bell has been formed, the bottom must be made level and it must be cleaned so that careful inspection may be had. The bearing ledges for intermediate bells, if there are to be such, must be given equally careful inspection and finally the completed well must be plumbed and the bottom elevation recorded.

It is frequently desirable to drill holes from five to ten feet deep in the bottom of the lower bell so that accurate knowledge may be had of the underlying soil characteristics. Such holes, at first, need only be drilled in wells at corners and one or two in the middle or third points longitudinally and if the soil seems to be in level strata no further holes should be drilled. If indications point to shelving strata it may be well to have additional holes drilled until the architect is satisfied that each caisson will be founded on soil of adequate bearing capacity.

Immediately after final inspection of the wells the concreting must be commenced. The mix of concrete will be discussed in subsequent issues. All concrete must be placed by means of flexible steel chutes not over twelve inches in diameter and having the lower end arranged so flexible that it may be moved around to permit proper distribution of the concrete. The chute should be kept filled with concrete to prevent dropping from extreme height, which, of course, is not desirable. The concrete must be deposited evenly and uniformly and tamped and rodded to remove air pockets and assure a dense mass. When the bottom of the lower row of lagging has been covered about six inches, the lower ring should be removed. The successive rings should not be removed until the concrete is about level with each one. All lagging is left in place. If necessary to restrain the soil until the concrete has set, the rings must be left in place and the specifications must provide a method of compensation for all such rings, as they are expensive and ordinarily the contractor uses them in job after job.

Quite often the design requires that the top portion of the caisson, generally not over two feet thick, be made of concrete composed of one part cement and two parts of gravel or granite screenings passing a one-quarter inch screen. This topping generally is placed after the concrete has had sufficient time to gain maximum shrinkage and should be brought to within one inch of the column base.

If reinforcing is required it usually consists of bars formed circular and is placed in the extreme upper part of the caisson. There is nothing par-

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ticular that must be specified in the placing of this reinforcing.

As the concreting approaches the designed top the level must once more be checked to eliminate chance for over-concreting, as mentioned above.

PNEUMATIC caissons are of varying types, made of wood, steel or concrete or a combination of wood or steel. Such caissons are used only in soils that are saturated with water or that are composed of quick-sands. Their use generally is resorted to in the city of New York where soil conditions are especially difficult. They are used not only for supporting columns but also to provide a watertight shell around the excavated basement portions.

Pneumatic caissons must be designed for each operation, according to the soil conditions and, also, as the experience of the designer dictates. They may have two shafts, one for the removal of excavated material and one for the passage of workmen or they may have one shaft serving both purposes, in which case there is only one set of air locks. The methods of sinking caissons are determined partly by the ease in which the weights —which ordinarily are iron pigs—may be moved from place to place and partly by the design of the caisson itself. Care must be exercised in the sinking of the caissons that they be kept plumb and that the sinking does not proceed so fast that sudden riding or a boulder or ledge of stone will throw it out of plumb before it becomes too difficult to straighten it out. Such occurrence is, of course, one of the exigencies with which the contractor must contend.

As in the case of open well caissons the pneumatic caissons must be carried down to substantial soil, which usually is bed-rock.

The concreting of pneumatic caissons may be accomplished in several different ways, according to the design of the shield and shafts. Care must be exercised to prevent the air pressure from blowing out the concrete under the cutting edge, or from forming air pockets in the concrete.

Since specifications for pneumatic caisson foundations must be written, generally, for each operation, governed by the conditions and factors that govern or are laid down by the designer it is rather difficult to lay down general rules other than the above. The outline, to appear in a subsequent issue, will include all the important phases of this type of foundations. There are two excellent engineering books on caisson foundations that will explain to the specification writer many of the engineering details from which he can gain sufficient knowledge for the intelligent preparation of specifications.

Laidlaw Building, San Francisco, California
Sylvain Schnaittacher, Architect

DEPARTMENT OF ARCHITECTURAL ENGINEERING

THE ILLUMINATION OF CHURCHES

Some Observations on the Optics of Light Intensities and the Psychology of Church Illumination

By HAROLD W. RAMBUSCH

THERE are several reasons why lighting calls for particular discussion by those engaged in designing and beautifying Church interiors. The question is particularly pressing just at this time, because manufacturers are bringing out the high powered lamps; and important in general because lighting experts have just found it profitable to give Church illumination much thought. However this latter may be just as well, for in the matter under discussion it will probably be better to talk and think in other terms than watts, volts and amperes. It is not merely a question of the amount of light but also of the effect of the quality, distribution and position of lighting units upon the congregations and the architecture of the interiors.

There are, therefore to be considered the creating of pleasant and comfortable light for the spectators, the artistic effect of the lighting upon the interiors, and the beauty of the fixtures.

It is obvious that high powered lamps cannot be used nakedly and this brings to our attention the mistake made in using even small incandescent lamps without shielding them from the eyes. The high powered lamp has simply emphasized the need of diffused light. While it is granted that by diffusing the light through frosted or sand blasted glass, about one-fifth of it is lost, it can on the other hand, be shown that this loss is more than compensated by other advantages gained.

It is astonishing how little light really is necessary for illuminating and reading purposes. When an interior seems insufficiently lighted, the reason is rarely a matter of the number of lamps or of their strength but more often of their positions or uneven distribution. One of the most practical demonstrations of how little light will satisfy the eye can be had by subway passengers in New York, Boston and Philadelphia. When the train passes from daylight into the tunnels, it is evident that there is only a fraction of the former quantity of light; but as soon as the eyes are adjusted to the new conditions reading is almost as easy as when the light was stronger.

St. Mary's Church, Johnstown, Pa.
John T. Comes, Architect
Where fixtures are placed directly against either ceiling or walls a glare is produced over those parts which defeats the purpose of the lights

Upon examination it develops that the reason why strong light cannot be used is that when the eye encounters it (and the eye will always gravitate to the strongest light visible) the pupil will rapidly contract. This has two results. First, normal sight and vision of other objects do not return until the pupil has slowly dilated again. Second, that a continual contraction and dilation of the pupil is a

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severe eye strain. Either of these points would be reason enough in itself to warrant effort to avoid it.

In an ordinary hundred watt lamp the surface of the filament from which the light radiates is only a fraction of a square inch and the eye viewing it encounters a severe intensity of light. Enclose the same lamp in a frosted glass container measuring, for example, about one foot square by two feet high and the light radiates from a surface enlarged several thousand times. The intensity is reduced and the illuminating value is increased proportionately with the diffusing surface. As a parallel, illustrating how intensity affects the eye, one might say that one pound of pressure on a pencil, with the point on the flesh, would hurt, while the same pressure with the other end of the pencil on the flesh would not hurt. It follows that the larger the diffusing surface, the more comfortable the light. But a chain is no stronger than the weakest link and it is therefore, not sufficient that the great majority of the lights are enclosed. The above is equally an argument against the use of small exposed lamps on the outside of the fixture, to illuminate the metal work or structure. This must be accomplished by varying the angles of the diffusing surfaces, unless the fixtures be so designed that when lighted, the silhouette will carry the design.

We know that when the mind is not definitely occupied the eye will always be attracted by the brightest spot in sight. Therefore there must be no brightest spot, unless it be perhaps the Altar, Chancel or Pulpit, illuminated by a flood of indirect light but never by a stronger visible lamp.

If there is one exposed light, the eye is sure to find it and the benefits from the diffused lights are almost lost. There is, however, another difficulty about having one portion of the interior more intensely lighted and the reason is almost entirely phychological. The subconscious mind is egoistic and if the light intensity is unbalanced, a feeling of dissatisfaction is engendered and nothing but the brightest light satisfies. Even if the entire interior were lighted as well as the brightest part, the introduction of a still brighter light would leave the mind unsatisfied.

St. Mary's Church, Johnstown, Pa.
John T. Comes, Architect
View taken after the installation of diffused lighting system. Fixtures are hung low for reading purposes, giving less light to ceilings. The Sanctuary is illuminated with flood light

The Sanctuary of St. Mary's Church, Johnstown, Pa.,
Showing flood light, with glass dimly lighted towards congregation, making source of light evident. Reflectors in fixtures give a strong light which can be directed to illuminate any part of the Sanctuary. The fixture is hung low for convenience in relamping and adjustment

By actual experiment, it has been established that given a large bowl of glass which is adapted to diffusing light, the fewer the units, the greater the relative amount of illumination. For example, in one case one 500 watt lamp gave as good reading light as five 150 watt lamps. Likewise, it has been possible to illuminate a fair sized Church better and more beautifully with ten fixtures each containing one 150 watt lamp, than it was previously illuminated by one hundred 40 watt exposed lamps. Naturally, the fewer the units, the greater the possibility of accentuat-

ing the lights and shadows of the architectural details.

When a fixture is placed on a side wall, little more than half the possible light can be obtained from it. This however is almost the least of the

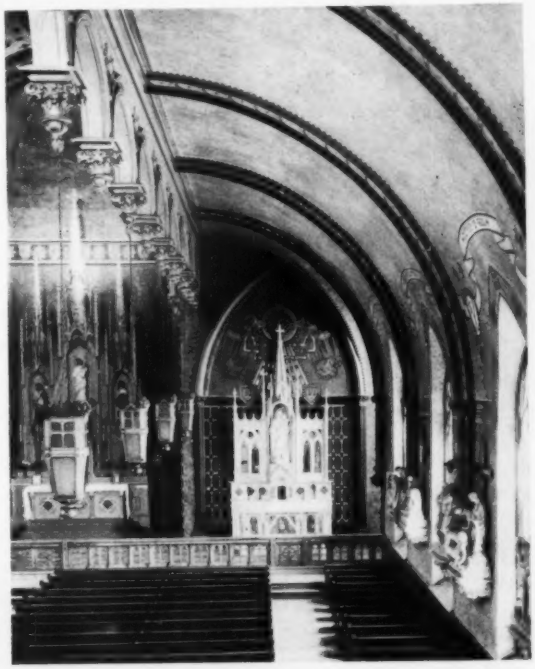
Our Lady of Guadaloupe Church, Brooklyn, N. Y., with ceiling and wall lighting fixtures

difficulty for it is not possible properly to see the wall itself. In the average Church, to illuminate the walls and the ceiling and to give a good reading light to the congregation it is advisable to place the fixtures at a point almost equidistant from the pews, ceiling and walls. In this way, the maximum light is obtained from the lamp, as it functions in all directions and various effects can be obtained by raising or lowering the fixtures. In the Catholic and High Episcopal Churches it is feasible and usually required that a good reading light be provided but that the auditorium generally be only fairly illuminated. The fixtures can in these cases, be hung nearer to the

Our Lady of Guadaloupe Church, Brooklyn, N. Y., with diffused lights. When fixtures are hung equidistant from surfaces to be illuminated, the maximum light efficiency is obtained without impairing the decorative scheme

pews than to either the ceiling or walls. Generally speaking, the lighting is dependent upon the ritual used. In a High Episcopal Church the lights are hung near the congregation. In a Presbyterian or Methodist Church the ceiling, walls and pews should be equally well illuminated.

The size of fixtures is, as a rule, increased when enclosed and diffused light is used. This is usually an advantage, as it brings the fixture into scale with the balance of the architecture. The mistake is too often made of considering illumination in a class with furnishings and equipment. When it has once been established that to light a Church successfully the fixture must attain considerable proportions compared with columns, capitals, windows, etc., the said fixtures will at once receive their due amount of thought in the architectural design.



St. Mary's Church, McSherrytown, Pa. In the absence of columns, fixtures have been hung as above. They give a perspective line which produces a feeling of side aisle, thus adding to the architectural effect of the interior

The designers of all ages have employed their talents particularly upon useful objects. It is worthy of note that as soon as it becomes evident that an object is needed in the Church, designers always face the problem squarely. This attitude is responsible for the many exquisite candlesticks, choir stalls, altars and pulpits. When, and not until, architects and interior designers recognize that the problem of the lighting fixture is of supreme importance as well from an architectural as from the illuminating angle, this feature of church interiors will be rescued from garish display and brought into harmony with the spirit of the edifice.

FLOOR LOAD REQUIREMENTS IN AMERICAN BUILDING CODES

THE following summary of differences in live loads in 65 American cities was compiled by Mr. Richard G. Kimbell, of the Architectural and Building Code Bureau of the National Lumber Manufacturers' Association:

Occupancy	Location	Range of loads in lbs. per square ft.
Dwellings	1st floor	30 — 80
	2nd floor	30 — 50
	attic	20 — 40
Tenements and Apartments	1st floor	30 — 80
	above	30 — 50
Stores—light mdse.	1st floor	75 — 150
	above	100 — 125
Stores heavy mdse.	1st floor	120 — 250
	above	200
Warehouses	Heavy	150 — 250
	Light	100 — 150
Factories	Heavy	150 — 250
	Light	100 — 150
Roofs	Pitch 20° or less	20 — 50
	Pitch of more than 20°	15 — 50
Assembly Halls Theaters, etc.	Movable seats	80 — 125
	Fixed seats	50 — 125
	Drill	100 — 250
	Dances	100 — 200
	Rooms	40 — 120
Schools	Corridors	60 — 125
	Assembly	75 — 125
Office Buildings		40 — 100
Public Buildings		50 — 150
Stairways and Fire Escapes	General	60 — 125
	Assembly	100 — 125
Garages	Public	70 — 175
	Private	40 — 125
Grandstands		80 — 125
Hotels	Rooms	30 — 75
	Corridors	60 — 125
Hospitals	Rooms	30 — 100
	Corridors	80 — 100
Sidewalks		150 — 500

Realizing that smaller cities are often influenced by the building codes of nearby large cities, the compiler took only places having a population exceeding 25,000 and scattered as widely as possible, in order that the data might be truly representative of the country as a whole. This in itself was quite a task, for, out of the 1478 cities in the United States having a population exceeding 5,000, only 410, or 27 per cent of them, have building codes.*

Excessive load requirements for floors were commented on by the late Frank E. Kidder many years ago. Successive editions of his pocket book have carried the discussion, yet there have always been enough conservative men in positions of authority to prevent improvement in the larger cities. Smaller places, in order to stimulate business and attract industries have revised codes to insure the minimum of cost in building; some not hesitating temporarily to set aside obnoxious provisions, or even repeal the whole code to be obliging when some important manufacturing establishment might thereby be induced to locate in the place and assist in its growth.

The differences are striking when placed in parallel columns. Whose is the fault? Are architects to blame? Are engineers to blame? Are contractors and material men to blame? It certainly cannot be the architects or the engineers, for the subject is one that has been discussed so often that men have wearied of it and set it aside with a "What's the use?", air. The conclusion reached by many authorities is that nobody is to blame except the voters who elect ignorant men to office and intrust them with the preparation of building codes which should be prepared by only skilled men. The politicians are often influenced by local material men who believe that a law which will enable them to sell more material is a good one to have. The writer served as a consultant in the preparation of more than ten building codes and found local lumber dealers insistent upon heavy floor loads in order to sell more lumber. Local brick manufacturers fought against thin walls and plumbers tried to have regulations for minimum numbers of appliances and tried also to have expensive grades specified. Codes having excessive requirements are merely survivals of an epoch when the "practical" man, so called, ruled city councils.

The absurdity of the situation needs little comment. Action is required. It should not require argument to convince men that if a floor load of 80 lb. per square foot is necessary then there are thousands of buildings designed for a 30 lb. load, in which the occupants are daily in danger of death. On the other hand if a loading of 30 lb. is sufficient then cities requiring 40, 50, or 80 lb. are encouraging waste and extravagance. The day for the blind copying of old ordinances by cities thinking they are getting up to date has not yet passed. Only five years ago a town having a population of 3000 wished to have a building code and obtained copies of codes from twenty-five of the largest cities in the country. The town attorney, refusing all proffers of help from the town engineer, proceeded to prepare a building code with the help of scissors and paste pot. When he ran across differences in floor loadings he adopted the heavier loading in every case, "To play safe," as he expressed it. For the same reason he used thick building walls. When in doubt he called on local carpenters, brickmasons and plumbers

* *The American Architect*, Oct. 12, 1921.

for help, in spite of the fact that the town engineer and a local architect were graduates of the State university. He said the code was to be a practical and not a theoretical document. Fortunately the Mayor had some intelligence and balked when the voluminous document was presented to him. He asked if the engineer had been consulted and was informed by the complacent attorney that this was a legal matter and not engineering, that engineers were very theoretical people and that he had been aided by practical builders and dealers in building materials.

The code was not even taken from the table. The attorney was dismissed and the engineer and his friend the architect were told to prepare one. Such happenings with less happy endings, are by no means rare and the action of the Secretary of Commerce in forming a committee to draft a building code which will serve as a basic standard for the whole United States is timely. Until this code is ready it is the duty of every architect and engineer to educate the public on the subject. People must understand that the object of a building code is not wholly "to obtain lower insurance rates," the reason generally given by ignorant compilers. In the meantime the model code of the National Board of Fire Underwriters leaves little to be desired for places where no building code is in existence. It was prepared by men chosen for their competency and freedom from bias.

BUILDING WALLS IN EUROPE

Information on code requirements and common practice in Europe in the building of walls of houses

THE two tables here presented will enable architects to compare the European practice with American practice in the design of walls for buildings. The thickness of all walls was given in the original tables in centimeters and heights were given in meters. In transforming centimeters into inches all fractions of an inch were disregarded, all dimensions being given to the nearest full inch.

Names of floors	Walls			Heights (floor to floor)
	Street	Court	Interior	
	in.	in.	in.	ft.
Foundations	30 to 39	30 to 39	23 to 34	
Cellar	26 " 32	22 " 32	18 " 24	6.40 to 9.15
Basement	26 " 32	22 " 32	18 " 24	7.93 " 9.15
Ground floor	20 " 26	18 " 20	14 " 20	8.53 " 15.25
Second floor	18 " 22	14 " 20	14 " 16	8.53 " 15.25
Third floor	14 " 18	10 " 16	10 " 14	8.08 " 13.00
Fourth floor	10 " 16	10 " 14	10 " 14	8.08 " 10.70
Fifth floor	10 " 16	10 " 12	6 " 12	7.93 " 10.20
Sixth floor	10 " 12	10 " 12	6 " 10	7.93 " 9.15
Seventh floor	Always a mansard or an attic story with a minimum height of 7.93 feet.			

NOTE: Every room of which the roof forms a part of the walls must have not less than 43 square feet of horizontal ceiling.

TABLE I. USUAL THICKNESS OF WALLS FOR TENEMENT HOUSES IN FRENCH CITIES

Table I, showing French practice is taken from E. Barberot's *Constructions Civiles*. Table II, showing German practice is taken from *Hutte*, the leading engineer's hand book in the German language. Thicknesses given are for good quality brick walls. For the best cut stone work multiply the thicknesses in the tables by 0.625 or 0.75; for first class rubble laid up in good mortar multiply by 1.25. Rubble walls are used for several stories.

The standard brick in Berlin is 9.85 in. long, 4.73 in. wide and 2.66 in. thick. The standard brick in Paris is 8.65 in. long, 4.33 in. wide and 2.66 in. thick. The walls are laid up to dimensions given by whole brick, fractions and multiples of brick. Dividing the walls in the tables by the standard lengths of German and French brick the thicknesses may be expressed in this way. This will permit of ready comparison with similar tables using the American standard brick 8 in. long, 3¾ in. wide and 2¼ in. thick. Such a method is even better than a comparison of inches for it gives at a glance the reason for the many odd looking thicknesses.

In Europe as in America such tables give only basic data. The thickness of a wall varies with the height and the unsupported length. The tables are for walls of ordinary height and with a length of hardly more than twice the height. Strength alone cannot govern wall thickness, centuries of experience having shown that stability is of great importance. Today with improved brick and mortar the desire of many constructors to put up thinner walls than formerly is checked by underwriters. During conflagrations many walls have been thrown down by the sudden expansion of heated air in closed rooms and walls have been wrecked when fierce heat on one side caused a draft which created a partial vacuum on the other side. Sometimes a combination of two actions may be present.

Names of floors	Walls of residences						Walls of factories				
	Face bearing wall (with openings)	Interior bearing wall (with openings)	Gable wall (non-bearing) (no openings)	High bearing wall (no openings)	Non-bearing gable wall (with openings)	Stair wall	Face bearing wall (with openings)	Interior bearing wall (with openings)	Gable wall (non-bearing) (no openings)	High bearing wall (no openings)	Stair wall
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Basement	31	20	20	25	20	15	36	25	20	31	20
Ground floor	25	20	15	20	20	15	31	20	20	25	15
Second floor	20	15	15	20	15	10	25	20	15	20	15
Third floor	20	15	10	15	15	10	20	15	15	20	10
Fourth floor	15	15	10	15	10	10	20	15	10	15	10
Fifth floor	15	15	10	15	10	10	15	15	10	15	10
Mansard	10-15	—	10	10	10	10	10-15	10	10	10	10

Footings for foundation walls must be figured for an average soil pressure of 2.5 tons per square foot.

TABLE II. THICKNESS OF BRICK WALLS IN BERLIN

Paint and Varnish

THE latest bulletin of the Educational Bureau, Paint Manufacturers' Association of the United States, Washington, D. C., is No. 141, issued Dec., 1921. The title is "Speed of Evaporation of Thinners from Paint and Varnish Films." It contains also a discussion of the viscosity effects of various hydrocarbons. The pamphlet is sent free upon request to interested parties. The data should be of some value to specification writers.

Six Centuries of Paper Money

A TIMELY brochure, entitled "Currency Inflation and Public Debts, An Historical Sketch," by Edwin R. A. Seligman, Ph.D., L.L.D., McVickar Professor of Political Economy, Columbia University, has been published by The Equitable Trust Company of New York, with a prefatory note by President Alvin W. Krech.

It is a treatise of unusual interest at this time, because it offers a clear and concise historical background, enabling bankers, statesmen and business men better to understand the present economic situation with its perplexing problems of taxation, price fluctuation, currency instability and the dislocation of foreign exchanges.

A limited number of copies is available for distribution upon request, by The Equitable Trust Company of New York, 37 Wall Street, New York, N. Y.

Fatigue of Metals

"THE phenomenon known as 'fatigue' of metals under repeated stress might better be called the 'progressive failure' of metals. The most probable explanation seems to be that such failure is a progressive spread of microscopic fractures. A nucleus for damage may be a very small area of high localized stress, due to a groove, a scratch or a crack; in other cases failure may be due to internal inclusions or irregularities of structure: it may be due to internal stress remaining after heat treatment; it may be due to a grain or group of grains unfavorably placed to resist stress; or failure may begin in the weaker grains of a metal whose structure consists of two or more kinds of grains; or it may, of course, begin in any portion of the metal which, by accidental overload or otherwise, is stressed to the yield point."

The foregoing quotation from the latest report on investigations of the fatigue of metals bears out the theory advanced about twenty-five years ago by the late J. B. Johnson. He believed that

when the stress on a piece of material caused failure in some portion, that the remaining area had to carry an increased unit stress. This in turn affected another weak spot and as each gave way progressively the increase in unit stress due to decrease in area finally passed the yield point of the sound material. The subject is one of great interest and the publication of the report of the investigation conducted by the Engineering Experiment Station, University of Illinois, in co-operation with The National Research Council. The Engineering Foundation and the General Electric Company, will be of value to engineers and manufacturers. The book contains a Glossary of Technical Terms filling nearly eight pages. It contains also eleven pages of bibliography of books, monographs and articles in periodicals dealing with the fatigue of metals and related phenomena.

Tests of Large H Columns

IN the Annual Report of the Director of the Bureau of Standards for 1921 it is said the results of the tests of large columns made for the American Society of Civil Engineers showed a systematic difference between the strength of columns made of thin and thick rolled materials. The present series of tests were made to study this effect in columns of still larger cross-section. Thirty-nine columns having cross-sections of five different types, (1) light and (2) heavy built-up plate and angle sections, (3) light built-up channel sections, (4) light and (5) heavy solid rolled sections, were tested in the 10,000,000-pound testing machine of the Bureau of Standards at Pittsburgh. The cross-sectional areas were approximately 40 square inches for the light and 85 square inches for the heavy sections, and the lengths were 12, 18, and 24 feet.

Physical tests and chemical analyses were made on coupons cut from the columns and the results compared with those from tests of the complete columns. The following summarizes the results of the tests:

1. The columns were carefully prepared, their ends were accurately surfaced, and they were carefully centered in the testing machine. This is shown by the uniformity of the stress-strain curves and by the steepness and sudden break in the lateral deflection curves.

2. The differences in the observed average column strength of these columns are almost wholly due to differences in the yield point of the material of which they were constructed.

3. Lack of homogeneity of the material may account in part for the low efficiencies of the heavy-rolled sections.

4. Secondary failure did not occur except, possibly, to a slight extent in the channel section. This shows that the webs were amply strong enough to carry the shear and the flanges thick enough to prevent buckling.

5. A small increase in economy in the use of the steel might be obtained by increasing the radius of gyration of the sections.

6. In view of the controlling influence of the yield point of the material upon the column strength, a more precise standard of definition and measurement of yield point is needed.

7. A properly standardized "drop of beam" yield point will furnish a measure of the strength of column material provided the material is sufficiently homogeneous, but a different measure will be obtained from the "useful limit" point or other extensometer measurements.

8. The yield points determined in commercial mill tests apparently bear no relation to the column strength.

9. Heavy-rolled material bought under the same material specifications (American Society for Testing Materials) will show a lower column strength than light-rolled material, because of a lower yield point.

10. Increase in the ultimate strength of steel, due to increased carbon content, apparently does not increase the yield point as greatly as a corresponding increase due to working.

A Government Housing Bureau

WITH the appropriation by Congress of $250,000, for the Department of Commerce, to be used as follows:

$50,000 for Continuation of Investigations of Structural Material and for the Collection and Dissemination of Scientific, Practical and Statistical Information concerning Housing, $100,000 for Investigation to Assist New Industries, $100,000 to Co-operate with Government Departments, Engineers and Manufacturers in the Establishment of Standards, Methods of Testing, and Inspection of Instruments, Equipment, and Electrical and Mechanical Devices, a Division of Building and Housing has been organized under the Bureau of Standards of the Department of Commerce. Mr. Franklin T. Miller, the well-known expert of the construction industry who, with Senator Calder, was largely responsible for the securing of this appropriation and the establishment of this division in the Department of Commerce, has retired from active direction of the work, and Mr. John M. Gries, of Urbana, Ohio, has been appointed Chief of the Division of Building and Housing. Since 1914 Mr. Gries has been giving courses in lumbering, business statistics and purchasing as a member of the faculty of the Graduate School of Business Administration of Harvard University.

The Department of Commerce, Advisory Committee on Building Codes, appointed last June, is now actively at work.

XUM

BOOK NOTES

Perspective Drawing*

ABOUT nine years ago the writer was asked to take charge of an evening class in perspective drawing. The students were errand boys, tracers and draftsmen lately advanced from the tracer status. The man who was to have taken the class had gone away, taking all the notes he had developed while teaching similar classes for several years and for the writer a text was necessary. He was too busy to work up notes within the time allowed. A search through the shelves of several libraries and a leading bookstore brought to the surface "Perspective" by Lubschez, then a new book. It was adopted. The class made excellent progress and several members were encouraged to take up later the more complete and advanced works of Ware and Longfellow. The book is well arranged for the instruction of self-tutored men and in this respect may be recommended.

A third edition is now on the market. A short description of the use of circumscribed octagons as an aid in drawing perspective circles has been included in this edition. A chapter on the history of perspective drawing has also been added. The book contains 13 chapters as follows: Introductory; Preliminary; Making a Drawing in Perspective; Second Problem in Perspective; Vanishing Points and the Point of Station; Measuring Points and Scales; Parallel or One-Point Perspective; Special Manipulations and Short-Cuts; Variations; Oblique and Inclined Lines and Planes; The Perspective of Shadows by Sunlight; The Perspective of Shadows by Artificial Light; Who Discovered the Rules of Perspective?

* *Perspective. An Elementary Text Book. By Ben. J. Lubschez, A.I.A.* 115 *pp. Ill.* 5x7½ *in. Cloth. New York. D. Van Nostrand Co.* $2.00.

Fire Resisting Construction*

THE story is told of General Sherman that when he went to Washington to assume command of the United States Army he was shown a lot of new Government buildings designed in the office of the Chief of Engineers and built under the supervision of officers of the Corps of Engineers. Perhaps it was not Sherman. It may have been some other general. It may not have been a general but some civilian, a newly elected or, newly appointed head of a department seeing for the first time in his official capacity the departmental buildings sheltering government employes and public documents.

* *Fire Prevention and Fire Protection; As Applied to Building Construction. By Joseph Kendall Freitag, B.S., C.E. New York, N. Y., John Wiley and Sons, Inc.,* 1038 *pp.* 4¼x7 *in.,* 395 *figs. Flexible binding.* $5.00 *postpaid.*

Whoever, or whatever, he was the story goes that each building was pointed out to him as being fireproof. He went through stone walled halls having brick or concrete floors, traversed room after room with small windows and unburnable walls, floors, ceilings and furniture; regarded the expansive wall surfaces of the plain exteriors dotted with stock size windows glazed with wire glass and embellished with iron shutters. Little by little his loquacity lessened and his cheerfulness oozed away. This however was not noticed by his guides, proud of their work, until at the end of, to them, a perfect day, they asked his opinion of the buildings. The story left them petrified with grief and amazement at the door of his hotel after hearing him say that the buildings in his opinion were "too ——— fireproof."

The official did not know it but the fact is that he, like the majority of mankind had been educated by architects to demand something more than dividends out of buildings. He wanted a building to look like a place within which human beings could work with pleasure and the exterior of which they could regard with satisfaction. In his generation the architect was considered as not necessary in the planning and design of fire resisting buildings. It was work for engineers because considered an economic question. Yet a difference was sensed in the looks of such structures.

Today a knowledge of fire resisting methods of construction is necessary for all architects. Buildings are now designed to resist fire as well as to resist vertical forces from weights and horizontal wind forces. A book on structural design can no longer be the sole reference work but it must be accompanied by a book containing details of fire resistive construction. Mr. Freitag wrote such a book some years ago and a second edition is now on the market. Revisions have been made in every chapter in order to keep abreast of the latest practice and record tests of materials and devices. The chapters in which most extensive changes have been made are those dealing with theatres and garages. The moving picture house is no longer a converted store and garages are planned before being built. The fire danger from such structures has been vigorously handled and the book is up to date in this respect. It is divided into six parts; Fire Prevention and Fire Protection; Fire Tests and Materials; Fire Resisting Design; Fire Resisting Construction; Special Structures and Features; Auxiliary Equipment and Safeguards.

The detailer will find the book a mine of information. The effect of heat on building materials is well treated and taken from official reports written by competent observers. The sections dealing with fire escapes and fire towers are especially good.

THE AMERICAN SPECIFICATION INSTITUTE

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The American Architect and The Architectural Review has gratuitously set apart this section for use by The American Specification Institute.

The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

Publishers, The American Architect and The Architectural Review.

Bulletins

BULLETIN No. Four has been issued as a revision of Bulletin No. One. This bulletin is accompanied by a suggested segregation of subdivisions which members are requested to criticize.

Bulletin No. Five which also has been issued, presents an analysis of specifications that is believed to be unique and yet expresses phases of specifications that are considered, consciously or unconsciously, whenever one is written.

Bulletin No. Six also has been issued as a tentative specification for concrete work. This bulletin has been prepared by the Institute. So far as practicable, use has been made of the Progress Report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete, which committee consists of five representatives from each of the following: American Society of Civil Engineers, American Society for Testing Materials, American Railway Engineering Association, American Concrete Institute, and the Portland Cement Association. Recourse also has been had to the reports of experiments and research conducted by Prof. Duff A. Abrams of the Structural Materials Research Laboratory of Chicago, and to various other sources of reliable information. The Board of Governors believes that this specification will prove to be entirely practical and invites the most meticulous criticism of all members.

Bulletins No. Seven and No. Eight will be distributed to members between the fifteenth and thirtieth of January. Bulletin No. Seven will be a revision of Bulletin No. 3 while Bulletin No. Eight will consist of matter of extreme interest to all members.

These bulletins will not be published in these columns as complete documents, brief summaries being deemed sufficient for publication.

The Board of Governors requests members to advise the Executive Secretary's office of any topics which they would like to have made the subjects of bulletins. These topics should be restricted to those of immediate interest to the majority of the members.

The Executive Secretary's office has received notice of an erroneous impression that some members and numerous readers of these columns, who are not members, seem to have gained with respect to the publication in The American Architect and The Architectural Review of bulletins issued by the Institute. It should be understood that all activities of the Institute will *not* be reported in these columns and that all members shall see that their file of bulletins is kept up-to-date. The Executive Secretary will be glad to supply an additional copy of each bulletin to members who have mis-laid the copies sent them.

The Winter Conference

THE Winter Conference will be held in Chicago on the evening of February 10, at the Chicago Engineers' Club.

The subject that is to be discussed will be Bulletin No. Five and it is believed that much of benefit to members will be gained at this meeting. Representatives of all interests concerned

with the accomplishment of work under concrete specifications will present their views and if the discussions are at all similar to those had at the December Conference some progress will have been made.

The Advisory Committee

THE Chairman of the Advisory Committee, Mr. R. J. Gaudy, has appointed the following members of the Institute as members of the Committee:

Mr. Frank Irving Cooper, Boston, Mass.
Mr. William Rice Pearsall, New York City.
Mr. T. E. Billquist, Pittsburgh, Pa.
Mr. C. A. Graether, Detroit, Mich.
Mr. George C. Wright, Chicago, Ill.
Mr. William F. Wischmeyer, St. Louis, Mo.
Mr. J. R. W. Ambrose, Toronto, Ontario, Canada.

In the working out of a plan of Chapter organization that is to be submitted to the membership for action at the annual meeting on May 1, the Board of Governors feels that the assistance of the Advisory Committee will be of the greatest value.

The Board of Governors also feels that meetings in the cities named above should be held concurrently with the Conference meetings in Chicago in order that as many of the members as possible will have an opportunity of coming into personal contact with one another and stimulate the general activity of the Institute.

Miscellaneous

EVERY member should have received, by this time, a copy of the specification booklet published by the Indiana Limestone Quarrymen's Association. The publication of this booklet marks a very progressive step forward in the compilation of authentic information of great value to specification writers. Members are requested to forward to the Executive Secretary's office whatever suggestions for improvement or criticisms occur to them.

The Executive Secretary's office has received from the Underwriters' Laboratories, Chicago, a copy of "Fire Tests of Building Columns," which tests were conducted by the Associated Factory Mutual Fire Insurance Companies, The National Board of Fire Underwriters and the Bureau of Standards, Department of Commerce. The report consists of three hundred and eighty-eight pages and presents matter of very great interest to members of the Institute.

New Members

THE following new members have been elected:

John, Macleod Watt, Architect, London, Ont., Canada; Alfred H. Chapman, Architect, Toronto, Ont., Canada; Theodore F. Laist, Architect, Chicago; Gilbert Townsend, Architect, Montreal, Canada; George C. Nimmons & Co., Architects, Chicago; Alexander Thorburn, Architect, Detroit; T. J. Skinner, Architect, Bessemer, Alabama; Howard C. Frank, Architect, Connellsville, Pa.; Raymond W. Jewell, Architect, Binghamton, N. Y.; Otto Gaertner, Architect, New York City.

Mr. Arthur T. North has tendered his resignation as a member of the Board of Governors and, with great reluctance, it has been accepted. Mr. R. Jarvis Gaudy, Chairman of the Advisory Committee, has been elected to succeed Mr. North.

Walls finished with Cabot's Old Virginia White, roof stained with Cabot's Creosote Stain.

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Better Homes and Buildings Exposition

A Better Homes and Buildings Exposition will be staged in Kansas City, Mo., February 6-11, 1922, under the auspices of the Real Estate Board. The Exposition will be held in Convention Hall and one feature will be a display of drawings and photographs of complete structures, interior and exterior decorations and sculpture. This division of the Exposition will be under the direction of the Kansas City chapter of The American Institute of Architects.

To Install School of Painting and Sculpture At Palace of Fontainebleau

IT is announced in Paris as quite probable that the Palace of Fontainebleau, in addition to the present facilities offered American music students, will install a school of painting and sculpture within the next year. The discussion was started after the examination of copies and designs of about thirty American art students and it is believed that the school would be successful as an "American Academy of Fine Arts."

The arrangements are likely to require some time before completion, if the authorization is granted.

Ohio State Conference On City Planning

THE Ohio State Conference on City Planning at its third annual meeting in Columbus, October 20-21, 1921, adopted a comprehensive legislative program, and through its legislative committee will prepare the statutes, sponsor their introduction and use its endeavors to have them passed.

Detailed information on the legislation will be supplied through the office of the secretary, Miss Charlotte Rumbold, 201 Chamber of Commerce Building, Cleveland, Ohio.

Masonic Home Competition

IT is announced that William Mooser, architect of San Francisco, has been declared winner of a competition held recently by the Masonic order of California. The problem was to provide a suitable plan for the future enlargement of the Masonic home at Decoto, near Niles, Alameda county. Eventually $1,000,000 will be expended on new buildings, but the immediate needs will be taken care of by the erection of four structures costing $250,000—a men's ward, women's ward, addition to the hospital and extensions to the dining room and kitchen.

City Planning In Kansas City, Mo.

THE Kansas City, Mo., committee on city planning has presented a report to the Chamber of Commerce. The Secretary of the Chamber of Commerce and the Secretary of the Real Estate Board of Kansas City may be addressed for detailed information.

City Planning

A LOCAL survey of Bristol, Conn., was recently completed by Mr. John Nolen. His report to the Mayor containing city plan proposals has recently been printed and is an interesting document on city planning for places having approximately 20,000 inhabitants.

Prizes of Rome in Architecture, Painting and Sculpture Announced

THE American Academy in Rome announces its annual competitions for Fellowships in Architecture, Painting and Sculpture. Each Fellowship is for a term of three years with a stipend of $3,000 and opportunity for travel. Studio and residence at the Academy are provided free of charge. The competitions, which will be held in various institutions throughout the country and will probably begin in late March or early April, are open to unmarried men, who are citizens of the United States. Entries will be received until March 1. Any one interested should apply for circular of information and application blank to Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York, N. Y.

Must Stop Devastation of Timberlands

THERE is a great conservation problem just ahead. The need is imperative for immediate action to stop the devastation of commercial timberlands and to provide for reforesting lands already cut over which are chiefly valuable for growing trees. A total area not much smaller than the original 13 states has been reduced to useless wastes, and forest devastation is proceeding more rapidly than ever before.

The disappearance of the trees and the failure to provide reforestation both on the part of the lumbermen and the various states, finds America in imminent danger of a lumber famine. The situation is so serious that in not to exceed ten years the remainder of the nation is bound to depend upon the three states bordering the Pacific ocean for its lumber supply. California, Oregon, and Washington already practically control the lumber market. Their hold upon it during the next decade will tighten.—(*The Bulletin.*)

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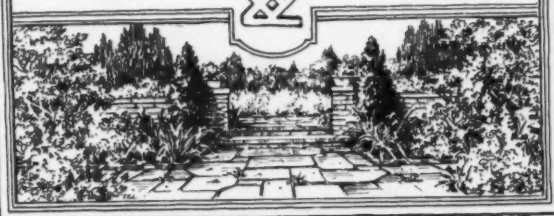

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The heavy butt, the taper and the beveled edges give an artistic shadow-line.

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XUM

San Antonio Draftsmen Organize Architectural Club

THE draftsmen of San Antonio, Texas, have organized an architectural club. E. B. Hays was elected temporary president and J. A. Williamson temporary secretary-treasurer. J. A. Williamson, J. A. Dodge and L. A. Meller comprise the organization committee.

"Emotion Lamps" in a Church

A NOVEL experiment in the shape of an attempt to stimulate spiritual emotion by the use of lighting effects is being attempted at the Church of St. Mark-in-the-Bowerie, New York. Mr. Claude Bragdon, architect, has devised a system of using the lighting effects for heightening the influences of music and prayer upon the emotions of the congregation.

Rome Will Build On Its Flat Roofs

ROME will become a city of odd appearance if the plans for the solution of the housing problem proposed by some Italian engineers are put in operation. The proposal is to build light houses of three and four stories on the flat roofs of most of the buildings in Rome.

The engineers have asked that American capital become interested in the project. The material for the whole scheme, according to the engineers' suggestion, would come from America because of the adaptability of American light construction methods in the choice of materials and means of assembling.

Stadiums

TWENTY years ago, states the Boston *Transcript*, stadiums were unknown to America. Now they rise everywhere. Columbia's announcement that she will build a $2,500,000 stadium at Broadway and 218th Street recalls that we shall soon have the Rice Memorial Stadium on Pelham Bay and the Yankees' Stadium on the site already purchased near the Harlem at 157th Street. Eastern universities lead in constructing these edifices. Yale Bowl, with permanent seats for over 60,000; Harvard's Stadium, with possible accommodations for over 50,000; Michigan's, of equal size; the Palmer Stadium at Princeton, permanently accommodating 41,000; Pennsylvania's, seating 22,000; Syracuse's, seating 20,000—all these are familiar. But Western universities are falling into line. Ohio State opened an enormous stadium last fall. Chicago expects to extend her concrete grandstands into one. And at Illinois the students alone only recently pledged $700,000 for a memorial stadium. We have non-academic stadiums, like Tacoma's and San Diego's.

The distinctions that architects and archæologists bid us make among open-air theatres, amphitheatres, stadiums, and circuses, are growing blurred in this country. Visitors to Berkeley are heard to speak of the "stadium" in reference to the Greek Theatre, whose prime glory is that it exactly reproduces the theatre at Epidaurus. The beautiful new Memorial Amphitheatre at Arlington will undoubtedly be called a stadium by many sightseers. We reserve "amphitheatre" for speedway stands and ball parks.

The stadiums are the largest-sized evidence of a growing love of outdoor sport, drama, and pageantry, in Americans. Macaulay's New Zealander, standing on the broken arch of High Bridge, can point to the Columbian stadium as evidence of the zest with which our country pursued outdoor pastimes.

Minnesota Federation of Architects and Minnesota Society of Civil Engineers to Meet

PREPARATIONS are being made for the first annual convention of the Minnesota Federation of Architects and the Minnesota Society of Civil Engineers, which will be held at the Curtis Hotel, Minneapolis, Minn., February 21-23, 1922.

Hawthorne's Maine Home to Be Preserved As Community House

THE house on the shores of Sebago Lake, South Casco, Maine, in which Nathaniel Hawthorne lived as a boy and where he made his home when he was attending Bowdein College, is to be preserved as a community house. Citizens and summer residents have just formed a corporation for the purpose.

Number of Persons in Family and Dwelling 5.3 and 5.1, Respectively

THE average number of persons to a family in the United States, according to the 1920 census, is 4.3 and the average per dwelling is 5.1. A family is any number of persons living together as a single household, whether it be one person or all the occupants of a hotel. A dwelling is any structure whatsoever in which one or more persons regularly sleep, be it a tent or an apartment house sheltering many families. Both the size of families and persons per dwelling have declined in each decade since 1880, as follows: Families, 5; 4.9; 4.7; 4.5; 4.3. Persons to each dwelling, 5.6; 5.5; 5.3; 5.2; 5.1. In general, the average size of families (1920) is greatest in the Southern and least in the Western states, but for individual states the range is from 3.5 in Nevada to 5 in North Carolina. Population per

Cross-section of a Barrett Specification Roof. Note the uniform distribution of Pitch between the layers of Felt.

Right Construction is *Half* the Roof—

STUDY the illustrations at the right. In these the successive steps in the building-up of a Barrett Specification Roof over concrete are graphically shown. The Barrett Specification describes in detail the manner in which the roof shall be laid, because *right construction is just as important as the use of right materials.*

The Barrett Specification Roof for flat- or nearly flat-roofed buildings, consists of several alternate layers of Specification Pitch and Specification Felt, with a surface covering of gravel or slag. These materials are used because 60 years' experience has proved—

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The concrete roof-deck is heavily mopped with a uniform coating of Barrett Specification Pitch

Left: Mopping on the Barrett Specification Pitch. Each layer of felt is hermetically sealed to the adjoining layer by the pitch waterproofing. In no spot do the layers touch each other.

Right: Laying the Barrett Specification Tarred Felt on the pitch seal coat. Four plies with pitch in between are laid over the entire roof surface, each ply overlapping three-fourths of the preceding ply.

Have your roofing contract call for the 20- or 10-year Surety Bond Guaranty. This is issued free of charge through the U. S. Fidelity and Guaranty Company of Baltimore. Then you will be sure that Barrett Specification materials will be applied, in sufficient quantities and by proper methods. For all Barrett Specification Bonded Roofs are constructed under the watchful eye of an experienced Barrett inspector who is present on the job to see that the Specification is strictly complied with.

Before specifying or closing contract for a Barrett Specification Roof, be sure to read carefully all the stipulations in the Specification.

Full details regarding these Bonded Roofs and copies of The Barrett Specifications sent free on request.

Below: Pouring final coat of hot Barrett Specification Pitch and embedding thick wearing surface of gravel or slag after entire roof has received four plies of felt and pitch.

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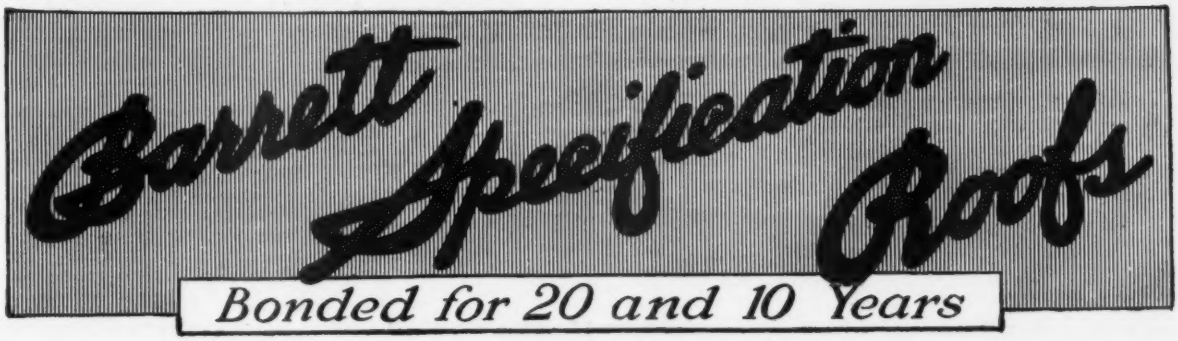


dwelling (1920) is greatest in New England and the Middle Atlantic States and smallest in the West, while by separate states the minimum is 3.7 in Nevada and the maximum 7.8 in New York. For the entire United States, the 1920 population is 105,710,620, in 24,351,476 families, living in 20,697,004 dwellings, the corresponding figures for 1880 are: Population, 50,155,783; dwellings, 8,955,812; families, 9,945,916. The number of families per dwelling was 1.18 in 1920 and 1.1 in 1880.

—*Engineering News-Record.*

The Lincoln Statue at Westminster

ALTHOUGH the Lincoln statue in Parliament Square, Westminster, was unveiled by the Duke of Connaught on July 28, after it had been formally presented by Mr. Elihu Root on behalf of the American people, and accepted on behalf of the British people by the Prime Minister, the bronze statue—a replica of that by Augustus St. Gaudens at Washington—had to be taken down from its temporary plaster pedestal, which was removed to make way for the permanent stonework. It was not until the first week in October that the statue was again exposed to the public gaze. One's first impression is confirmed that the chair of state which occupies so much space to so little purpose behind the President is a great mistake in the London statue, however effective a feature it may appear in the Washington version, where the statute has an impressive architectural setting, to which this detail seems not utterly extraneous.

City Planning Proposed for Canton, China

IT is announced in press reports that the Mayor of Canton, China, has written to the mayor of San Francisco, asking for maps of the larger cities and other material bearing upon "schemes of city planning," which would be of assistance in "remodeling the city of Canton along modern lines." This opportunity for remodeling has arisen, the letter states, "in consequence of the recent demolition of our old city wall." The letter is published in full in the October *National Municipal Review* (New York City) in the hope that its publicity in this country will lead representatives of other cities than San Francisco to send helpful material to the Mayor of China.

France Rapidly Restoring Devastated Areas

CLERY-SUR-SOMME, a little village in the department of the Somme, situated near Péronne, and which was destroyed completely in 1916, has been restored to the extent of the reconstruction of its communal buildings and many of its habitations, through the personal enterprise and generosity of M. Maurice Fenaille, member of the Institut de France, and the ceremony of the inauguration was held recently in the presence of the Minister of Public Instruction and Beaux-Arts and other notabilities.

Oak Roof Lasts 500 Years

THE interest which belongs to Westminster Hall, London, is not confined to its historic associations with the beginnings of Parliamentary Government, but extends to its relations to the science and art of architecture.

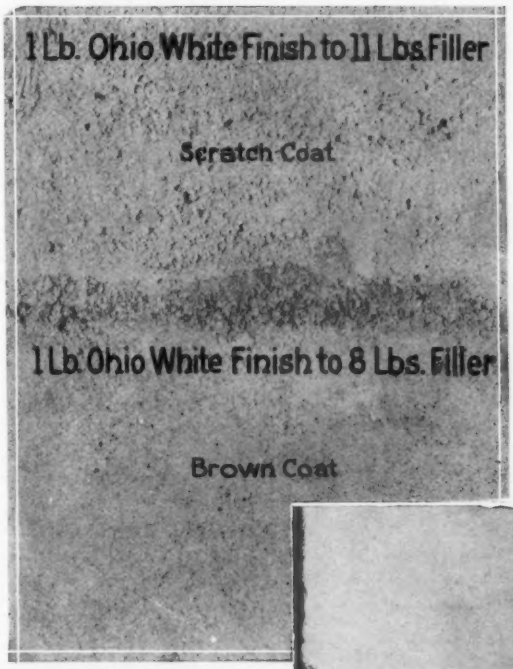
The roof, as it is seen at the present day, dates from 1397 and illustrates the beautiful development of woodwork at a period when Gothic architecture was at its best. It is sad to think that even woodwork will not endure forever and that it has at last been necessary to restore this beautiful construction. Although considerable renovations were effected in 1823, it was not found necessary to make any extensive repairs to the woodwork until some time ago, when it was discovered that much of the structure has been attacked by a wood-boring beetle and rendered unsafe.

The British Government has ordered the restoration of the roof to be undertaken in a manner which will offend neither the historian nor the artist, and although every roof truss will be taken apart and renewed where necessary and will serve only as a mask for a hidden steel structure, there will be no visible evidence of any change.

Wood experts, are able to confirm the opinion that this roof is of oak.

For the benefit of posterity many water-color drawings to scale have been made of the roof details. It was natural that there should be requests for some of the old wood to be made into snuff boxes and other souvenirs, but for various reasons these could not be gratified. It is reported that pieces of the wood will be sent to museums all over the world.

What Will It Do —and Why ?



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PERSONALS

Leigh Hunt and George Marks have established a partnership for the practice of engineering and architecture in Milwaukee, Wis.

J. J. Cooper Company, architects and builders, have moved their offices from 319 Dallas Building to 310 Atee Building, Tulsa, Okla.

Arthur Rosenstein, architect, announces the removal of his office to 7 State Street, Boston, Mass., where he will continue the general practice of architecture.

G. Herbert French, architect, formerly with Benton & Benton, architects, announces that he has opened an office for the practice of architecture at 513 Times-Dispatch Building, Richmond, Va.

Announcement is made that Robert A. Walker and Frank J. Thomas of Kansas City, Mo., have bought the architectural practice of Walter H Simmon Company, El Dorado, Kan.

George A. Daidy, architect, 503 Kresge Building, Washington, D. C., is desirous of receiving manufacturers' catalogs, price lists and specifications to complete his files.

It is announced that Loewenberg and Loewenberg, architects, have moved their architectural offices to the Harris Trust Building, 111 West Monroe Street, Chicago, Ill.

J. B. Chamberlain, formerly chief engineer of construction for the Duplan Silk Company, Hazelton, Pa., has opened an office for the practice of architecture in the Markle Bank Building, Hazelton, Pa.

John A. McKibblin, architect, announces the opening of an office at 609 Industrial Trust Building, Wilmington, Del. For the past thirteen years Mr. McKibbin was associated with the late John J. Kennedy.

J. Frederick Krokyn and Ambrose A. Browne, architects, wish to announce the consolidation of their offices and removal to 7 State Street, Boston, Mass., where they will continue as a firm in the general practice of architecture.

Joe Stone, Frank C. Walter and John E. Deegan announce the opening of an office for the practice of architecture at 334 Kennedy Building, Tulsa, Okla. The firm name will be Stone, Walter and Deegan. Manufacturers' catalogs and samples are requested.

Frederic C. Hirons of the firm of Dennison & Hirons, architects, 288 Lexington Avenue, New York City, recently returned from a trip abroad. He visited France and Italy and stayed for some time at the French Academy in Rome.

It is announced that Alfred L. Brown has opened a studio at 17B Irving Avenue, Atlantic City, N. J., for the rendering of perspectives and the making of technical illustrations and reproduction drawings.

J. Osborne Hunt, architect, who recently opened new offices in the Hunt Building, 219 East Hanover Street, Trenton, N. J., desires to receive manufacturers' samples and catalogs to complete his files.

A. D. R. Sullivant, formerly associated with Hoppin & Koen, architects, and Frederick M. Godwin announce the formation of a partnership for the practice of architecture under the firm name of Godwin & Sullivant, with offices at 350 Madison Ave., New York City.

George E. Gable and C. Stanley Wyant have opened offices for the practice of architecture at 634 South Western Avenue, Los Angeles, Cal., under the firm name of Gable & Wyant, architects, and desire to receive manufacturers' catalogs and samples.

Announcement is made that John T. Comes, architect, Renshaw Building, Pittsburgh, Pa., has taken into partnership two of his former associates, Will R. Perry and Leo A. McMullen, and the firm will henceforth be known by the name of Comes, Perry & McMullen.

It is announced that Prentice Van Walbeck Duell has recently been appointed an instructor in Architectural History in the Department of Architecture at the University of Illinois, Urbana, Ill. Mr. Duell is the author of two books on Mission Architecture, and has published a number of magazine articles on the History and Architecture of the Old Missions.

Announcement is made that Pierpont and Walter S. Davis, architects, Los Angeles, Cal., won the competition recently held for the selection of an architect for the new St. John's Episcopal Church to be erected in that city. The competition was conducted under the rules of The American Institute of Architects, Edwin Bergstrom, president of the Southern California Chapter, serving as the professional adviser.

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